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Military Review

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Vigilance--Yes; Fear--No!

Doctor C. Langdon White, Professor of Geography, Stanford University

In his February MILITARY REVIEW *article, "Pivot of History," Mr. O. Edmund Clubb, drawing upon his studies and his 20 years of experinece as a United States Foreign Service officer in Asia, outlined the ambitious plans and efforts of Soviet leaders for the development of the vast natural resources of the Eurasian heartland. In the following article Dr. C. Langdon White, eminent geographer and Stanford University professor, presents a geopolitical appraisal which analyzes and balances the strengths and weaknesses of the USSR vis-à-vis the United States.—Editor.*

A COLD war is in progress in which two ideologies as far apart as the two poles are desperately contending. The one stands for freedom and is backed by the United States and her many allies; the other is communism and is backed by the Soviet Union and the so-called Soviet bloc.

There is more speculation regarding the USSR than regarding any other country on the globe. Because the average American, even when well educated and well informed, is confused as to the real strength of the Soviet Union and as to how vulnerable America really is, the tendency among Americans is either to overestimate or underestimate Russia's potentialities.

It must be readily admitted that no American can claim to be an authority on present-day happenings in the Soviet Union. Nonetheless, a great deal of information sifts through, under, and around the Iron Curtain and hundreds of individuals and organizations in the United States and Western Europe are at work around the clock putting together the parts of the Russian jigsaw puzzle. Among those whose material should be most helpful in presenting a broader and more accurate picture of Russia are the geographers: their material is rooted in the natural environment. Moreover, modern geographers are synthesizers, weaving certain data of the natural and social sciences into something that differs from its components.

It is the aim of the following discussion to:

1. Present the Soviet Union's strengths and weaknesses.
2. Indicate how great is America's present danger from Russia.
3. Assess the probabilities of a shooting war between the two countries.

Behind these aims is a sincere desire to aid the reader in drawing his own conclusions.

What is Geopolitics?

Since the Russian leaders are undeniably following a geographical blueprint, let us first note briefly what geopolitics is and present a few high spots of its evolution. In spite of the awesomeness and its supposed connection with black magic, geopolitics when stripped of its mysticism

Is the Soviet Union really strong and great or merely noisy—a master in the technique of propaganda and the waging of a war of nerves? It would be foolish for us to overestimate or underestimate the Russians

is merely the employment by statesmen of geography in the affairs of nations, an ideology of Imperialist expansion.

There are two brands of geopolitics: the pseudoscience of the dictatorships, such as was practiced under Hitler, Mussolini, and the men in the Kremlin, and the American, British, and French brand, which is not antisocial, whose materials are valid and which contribute guideposts for statesmen. Prior to World War II, much greater weight was given to political and anthropological criteria than to scientific geographic data.

In short, geopolitics is a theory of international conduct in which the state is considered to be the principal factor and in which all other states and their rights are of secondary importance. It is a system of action on the part of a state to get what it wants. It is concerned largely with securing world power, yes, even world domination, by the country employing it.

Some half century ago a British geographer and economist, Sir Halford J. Mackinder, studying the relationship between the physical environment and history, came to the conclusion and stated it in an address before the Royal Geographical Society that the *great inner land mass of Eurasia might one day become the center of an empire capable of ruling the world.* He named the vastness the "heartland." One of his statements regarding this area was much quoted during World War II:

Who rules East Europe commands the 'heartland'; who rules the 'heartland,' commands the 'world island' (the greater part of the Eastern Hemisphere); who rules the 'world island,' commands the world.

About 40 years later, while World War II was still in progress, Mackinder wrote:

All things considered, the conclusion is unavoidable that if the Soviet Union emerges from this war as the conqueror of Germany, she must rank as the greatest landpower on the globe. Moreover, she will be the power in the strategically strongest defensive position. The heartland is the greatest natural fortress on earth. For the first time in history it is manned by a garrison sufficient both in number and quality.

What of Mackinder's ideas today? He seems to have erred in two important respects. First, he contended that the "heartland's" position was so excellent pivotally that it would eventually dominate the entire world. He was incorrect in this respect during the early 20th century because political power was centered in Europe and in Germany, not Russia. Second, Mackinder overemphasized the importance of the "world island" and underemphasized the importance of the United States (Figure 1).[1]

The Germans prior to and during World War II tried desperately to put the "heartland" theory into practice but were unsuccessful. Their rivals and successors, the Russian geopoliticians, however, have been meeting with no little success.

The man who did most with German geopolitics was Hitler's advisor during the early years of World War II, Karl Haushofer. He had served as a major general

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[1] Mackinder considered the Americas and Australia as mere satellites of the "world island." The "heartland" of North America is second to none in economic and political power.

in the German Army during World War I. After the war he taught geography and military science at the University of Munich. It was at this time that he was determined to find out the causes of Germany's defeat and to prevent such from occurring again should the fatherland become involved in another major war. Integrating the teachings of Ratzel, Penck, Dix, Kjellén, and Mackinder, Haushofer developed a geopolitics which was adaptable to German military planning and especially to Hitler's conquest. Indisputably geopolitics played a potent role in the German seizure of Czechoslovakia and in the defeat of Poland, Norway, Denmark, the Low Countries, and France.

When Hitler decided to invade the Soviet Union, however, Haushofer objected strenuously, for he believed the geopolitical truism that the Russians would trade space for time. He knew also that the long and bitterly cold Russian winters would play havoc with the German armies as they had done with those of Napoleon. The results of that fighting now seem to prove that Hitler's Stalingrad campaign, in fact his entire Russian invasion, must be put in the same category as Napoleon's Russian invasion—*complete disregard of space factors.*

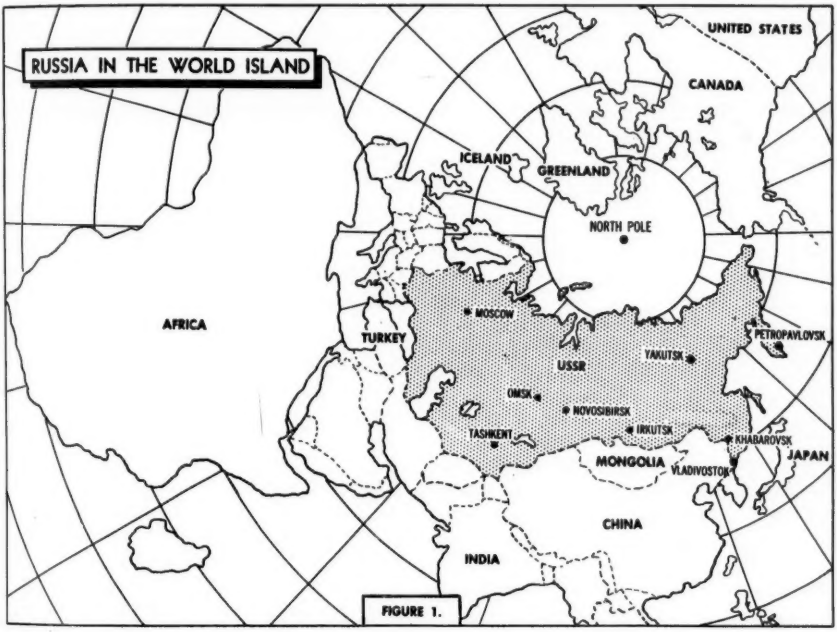

FIGURE 1.

Why has Russia's post World War II attempt to employ geopolitics thus far succeeded, wherein Germany's attempt failed? Briefly, the answer seems to be what Mackinder said in 1943 (page 4) plus the fact that the extirpation of German influence in Central Europe gave the Russians another opportunity to express their Central European intent in new political geographical concepts. Moreover, the Russian revolution never relaxes, al-

though at times it falters. It alters techniques and personnel but never renounces its program of planned chaos. It shifts gears and reduces speed but it never misses direction or loses sight of its objectives.

Now what of the Soviet Union today? Is she really strong and great or merely noisy—a master in the technique of propaganda and the waging of a war of nerves? As the writer sees it most Americans fall into two camps in evaluating Russia: one group definitely *overestimates* her strength, the other *underestimates* it. Russia's strengths and weaknesses follow.

RUSSIA'S STRENGTHS

The Soviet Union has the fiery urge and the determination to become the foremost nation on earth—in short to become what the United States now is, a truly great power. To acquire such status, however, a nation must have an enviable combination of economic, geographic, political, social, and moral assets.

Size

Russia is what geographers call a gigantic country—one comprising more than one million square miles (Russia comprises eight and one-half million square miles). Today, only huge countries are able to attain "heavyweight" stature, although size alone cannot guarantee it. With one-sixth of the land surface of the globe, the USSR is the largest unbroken political entity on earth and is as large as the United States, Canada, Alaska, and Mexico combined (Figure 1).

One advantage of large size in time of war is that the country benefits from defense in depth; this is impossible for small nations. In the last war tiny Belgium and Holland lasted but a few days, whereas gigantic Russia and China were not defeated.

Actually, the small nation is an anachronism in the world of today: an inefficient unit for autonomy either in peace or war, it no longer serves effectively even the buffer function for which many were created. In fact, the small buffer state is today dangerous to world peace, since it invites aggression by powerful and unscrupulous neighbors. This does not mean, however, that the small states are disappearing; in fact, they have increased numerically in the past 50 years. With modern communication and transportation, large areas are now relatively easy to administer.

Gigantic size contrasted with small size also is reflected in the total number of inhabitants. Although the population of the Netherlands is the densest per square mile in the world (852), there are only 10,615,000 inhabitants compared with 200,200,000 in the USSR.

Still, another advantage of huge size is the large variety of natural resources that is possible; other things being equal, Russia probably is the richest nation on earth. Belgium, Holland, and Denmark are poor by comparison.

Minerals Endowment

A nation's industrial potential and, therefore, its ability to progress both in peace and war depends to a very great extent on its endowment of minerals. It is believed that no other country is so rich in this respect as the Soviet Union: a list of the minerals Russia possesses looks like the index of a mineralogy textbook and provides a useful guide to the total economy, technology, and broad policies of the government. Moreover, data pertaining to mineral deposits and the mineral industry are easier to assemble and interpret than those in other segments of the economy. A nation can hardly keep its information on minerals ambiguous.

In Czarist days Russia knew not what she possessed in mineral wealth, but since the Revolution several hundred geological reconnaissance field parties each summer

have spread out into all parts of the country ferreting out mineral deposits. It must be admitted that the situation as presently known still reflects the pioneering stage of Soviet prospecting and mining development. Nevertheless, it is known that the variety is infinite and the reserves great.[2] Unfortunately, the distribution is not as favorable as it should be to be of greatest value to the country.

While generalizations on assessed reserves must be viewed with caution, it seems safe to assert that deficiencies in most instances are likely to be transitory and that Russia is exceptionally well endowed. Certainly, the USSR offers more in the way of probabilities of new discoveries than does the United States. It is unlikely, however, that any substantial mineral autarchy will be possible for at least a generation. Both new discoveries and production are impressive. Under Khrushchev the country's output of coal is 13 times greater and of petroleum eight times greater than under the czars.

While the lands potentially capable of producing oil in the USSR are enormous, the estimated reserves, amounting to only 4,275 million barrels or seven percent of those of the world, continue to be disappointing to the men in the Kremlin. In production Russia ranks a poor third. Some students of minerals believe that oil may prove to be the "Achilles' heel" of the Soviet Union and that this may be the dominant reason for the current Russian interest and activity in the economic and political affairs of the Middle East.

Population

A sizable population is a great asset for national power. This does not mean that huge population alone, any more than huge size of a nation alone, guarantees power. But certainly, it is a major ingredient. If numbers alone spelled national power, China and India would rank as first-class powers, which they assuredly are not. The difference in the weight of this factor in China and Russia is that Russia has the minerals and the industrial might and the transport to back up her manpower, whereas China has not. Regardless of Communist propaganda, China still is very much an underdeveloped country.[3] Russia's population of 200,200,000, intermeshed with her other elements of strength being enumerated here, spells national power.

Until recently population in the Soviet Union was not effectively distributed, the great majority of the people dwelling in European Russia with only a narrow band extending eastward to the Pacific Ocean roughly along the route of the Trans-Siberian Railway. Particularly since World War II, however, migration into the trans-Ural sections has been impressive—a migration now regarded as a trend. Thus the population of Kazakhstan in Central Asia increased from 6,200,000 to 8,500,000 between 1940 and 1956—a jump of more than one-third. And several Siberian cities—Chelyabinsk, Novosibirsk, and Sverdlovsk—are today among the largest cities in the USSR (Figure 2). This new population distribution has made the Soviet Union far more effective from the standpoint of national power.

The Military System

The Soviet Union has more men under arms than any other country in the world —175 divisions including 65 tank and mechanized divisions. Superiority in numbers is historically an essential part of the Russian system. Without mass the Soviet Army has never been successful. In 1952 it was estimated that one United States division packed one and one-half

[2] Dmitri B. Shimkin, *Minerals: A Key to Soviet Power*, Harvard University Press, Cambridge, Mass., 1953, p 340.

[3] C. Langdon White, "Industrialization: A Panacea for Underdeveloped Nations?" *Yearbook of the Association of Pacific Coast Geographers*, Vol. 17, 1955, pp 3-20.

times more over-all firepower than a Soviet rifle division.

The Russian air forces have been stabilized at about 20,000 aircraft with production of jet planes increasing rapidly. The Soviet Navy is believed to have 300 submarines, at least half of which are large or medium ocean-going types. Moreover, Russia has both the atom and hydrogen bomb and the long-range aircraft to deliver them to distant targets. It is believed, however, that if Soviet troops would have to fight on their own ground, they would employ the old strategy of trading space for time.

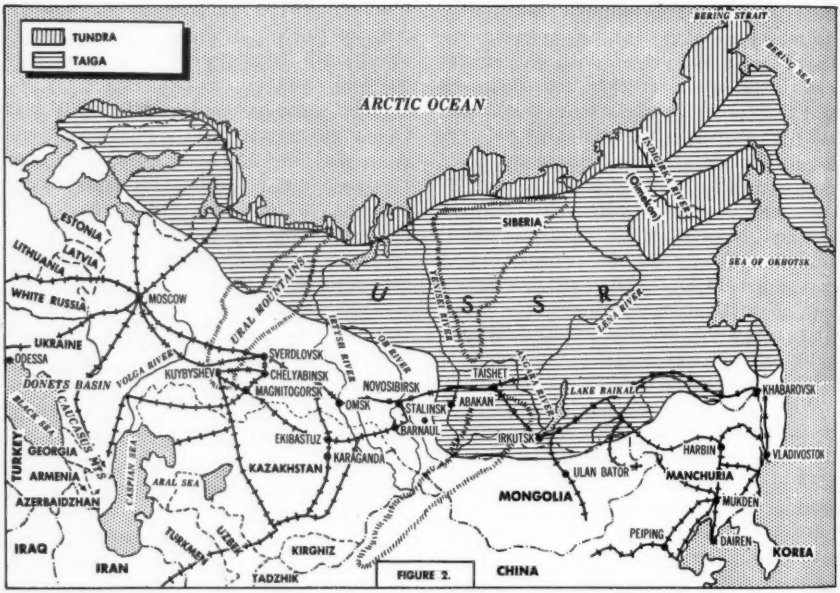

FIGURE 2.

The armed forces in every way must be regarded as a source of strength for the USSR. They carry much political weight inside the country because the regime in power invariably assures itself of the political loyalty of the army.

Rapid Development of Technology

A major difference setting off developed from underdeveloped nations is trained technical personnel. *In no country has the transition from illiterate peasantry to literacy and now to trained personnel been so rapid and so impressive as in the Soviet Union.* No Westerner traveling through Russia fails to be impressed by this situation and few things bother Americans so much as the recent knowledge that the Soviet Union is turning out scientists and engineers in greater numbers than the United States. It is reported that 800,000 people in 1955 received diplomas as physicians or engineers and 50,000 more as biologists. The number of trained engineers in the USSR increased from 41,000 in 1920 to 541,000 in 1954—a 1,300 percent rise. In the same period the United States increase was from 215,000 to 500,000. Allen Dulles, Director of the United States Central Intelligence Agency, believes that by 1960 the Soviet Union will have 1,200,000 scientists and engineers, whereas the US will have 900,000.

Quality as well as quantity must be

mentioned. A group of top-flight American physicists returned recently from a trip to Russia and stated unanimously that in the development of theoretical high-energy physics research, the USSR and the US are just about on a par but that the former has outstripped us in nuclear equipment and construction technology. Moreover, Russian technicians have just recently developed a turbo oil drill which top American oil industry technicians had worked upon unsuccessfully for a number of years. Also, Russian successes in the field of automation are confounding American business and government circles.

Industrial Might

Industrial potential and production possibly more than anything else means power in international affairs. Russia today ranks as the second most important industrial country on the globe. This quick metamorphosis from a backward agricultural country with 80 to 90 percent of its working population peasant farmers to a well-developed agroindustrial state has been an accomplishment of the first order. The Communist leaders from Lenin to Khrushchev have determinedly sublimated everything else to heavy industry, it being estimated that 21 percent of the net annual income is put into heavy manufacturing. Despite Russia's achievement, she is far behind the United States in steel production. In 1955 the United States produced 117 million tons of steel, whereas the Soviet Union produced 49½ million tons. The American share of the world output has been dropping, whereas Russia's has been rising (Figure 3).

It is disturbing to many Americans to see Soviet industry growing faster than ours. Yet it must never be forgotten that Russia is so far behind us that percentagewise she can make a more impressive showing. It is probable that Russia's *rate of industrialization* has reached or even has passed its peak. As her steel capacity approaches ours, as distances between raw materials resources and production centers increase, and as raw materials of lower quality have to be utilized, a slowdown in rate of expansion is inevitable.

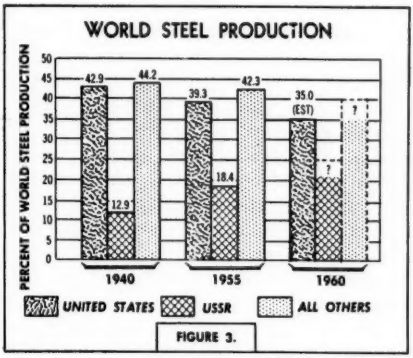

FIGURE 3.

It is interesting that some of the world's most competent authorities on the metallurgical industry believe that it will be some 40 years before total Russian capacity approximates that of the United States. Nevertheless, *it should not be forgotten that under Khrushchev the Soviet Union is producing 11 times more steel than did Russia under the czars and that the steel output of Soviet furnaces today almost equals that of Great Britain, Germany, and France combined.*

What about industrial efficiency? For some years American and Western European industrialists were prone to be very critical of Russian workers' efficiency. Compared with workers from the United States or Western Europe, the Russian is not yet efficient. Russia suffers from a low quotient of machine power per worker; productivity per worker does not increase as it does in the United States. Overlapping bureaucracy with its tedious negotiations among ministers also contributes to industrial inefficiency.

WEAK SPOTS IN SOVIET ARMOR

The principal strengths that can be dealt with in so brief an article have now been presented. The major weaknesses follow.

Size

Gigantic size may be both a strength and a weakness. When large size was presented as a strength, nothing was said regarding the quality of much of the land. It was not pointed out that millions of square miles are too cold, too dry, too infertile, too mountainous, or too something for effective settlement. *Of the eight and one-half million square miles comprising the Soviet Union, only one-half million square miles are agriculturally productive.*

The larger a country, the more dependent it is on efficient and adequate transportation. Most gigantic countries, however, are weak in transport. No other country on earth is required to do so much hauling per unit of national output as the USSR—a necessity arising out of the vast distances between sources of supply and manufacturing centers.

Another weakness of gigantic size is seen in the distribution of the population; most of the people are concentrated in European Russia, particularly in the area south of the Upper Volga. Large areas in Siberia average less than one person to the square mile. In fact, the enormous area east of the Ural Mountains supports fewer than 50 million people.

From a political standpoint, huge size may prove to be a weakness since so many and such diverse peoples must be controlled and united. More than 150 ethnic groups are to be fused together in the USSR. They include almost every element in the peoples of Eurasia, from Germans and Greeks to Chinese and Koreans. Slavs comprise the largest group. Of these the Great Russians make up probably half the Soviet population, with the related Ukrainians and Byelorussians together comprising another quarter. These peoples differ strongly in physical characteristics, historical background, native culture, language, religion, and customs. Obviously, any government trying to weld together such diverse peoples faces innumerable tensions and animosities.

Isolation

Few Americans realize that Russia is the most isolated of the great powers. She is enclosed on virtually all sides by high and broad mountain ranges or vast deserts. Although her coastline of 30,787 miles is the longest on earth, this coastline is the least useful. Nowhere does the Soviet Union possess a good commercial seacoast with unimpaired access to the open ocean. Not a single one of her water routes lies directly on the great ocean highway. Every route from Soviet seas passes through straits or past capes. And the ice-choked Arctic Ocean is open for only a few weeks each summer. Despite the tremendous effort, capital, and time spent by the Communists developing the Northern Sea Route, it has had and promises to have in the future only limited economic usefulness.

Climates

One advantage of huge size is the wide variety of natural resources available, of which climate is one. Russia has a considerable variety of climatic types but unfortunately all are *continental*, the result of Russia's position in the world's largest land mass, far from world oceans. Thus the Soviet Union exemplifies continentality in the extreme. This means marked extremes in heat and cold. Except in the extreme south, even summers are brief, although the thermometer may climb toward the 100° F. mark. Thus in the fall of 1956 chilling blasts swept across the plain from Siberia. For more than half the year the land experiences temperatures often well below zero with

ice and snow dominating the landscape.

The central region of the Oimekon River in eastern Siberia is now regarded as the cold pole of the earth. A temperature of −90° F. has been recorded there. As a result of the research to be carried on in Antarctica during the International Geophysical Year (1957-58), it may be that the cold pole will be found to be there.

Not Enough Arable Land

Soviet economic policy must reckon with the fact that most of the vast Russian realm is unsuitable for normal intermediate zone life and farming and that even in the more favored spots there are great difficulties to be faced. Consequently, crop failures and shortages, even occasional famines, are not uncommon. Further expansion of agriculture will entail low productivity per unit of manpower or capital investment, since more than three-fourths of the Soviet Union offers little promise by reason of harsh geographic environment. Only 10 percent of the country is arable. Much land now being utilized for farming is as poor as abandoned farmland in New England, the Appalachian region, or the Dust Bowl.[4]

The sparse population over much of Siberia, for example, is the consequence of the harsh climate. The winters are so long and so cold that much of man's energy must go into fighting for simple survival against the hazards of sustained below zero temperatures.

Inadequate Food

Despite repeated five-year plans and constant prodding, the USSR cannot seem to produce adequate food. Such plans as collectivization, relocation, more cattle, and now a corn-hog belt such as America's Corn Belt, have all failed to produce the desired results. Thus the estimated per capita output of grain is about where it was in 1928 and that of edible animal products has declined 30 percent in the past quarter century. With six million fewer head of livestock and an increase in the human population of some 60 million people, the implications are clear.

Behind the food shortage are little realized facts of Russian geography. Nearly two-thirds of the enormous tracts comprising the USSR consists of Arctic tundra and taiga—both poorly suited for raising food (Figure 2). Three-fourths of the country is too cold or too dry and only one-tenth is capable of producing food. This compares with one-fourth for the United States.

Tundra refers to all vegetation on the polar side of timberline. It is a plant association of considerable variety. In Eurasia it consists mostly of a treeless moss-covered steppe; in North America of lichens rather than moss. The mean temperature of the warmest month is below 50° F. and only the top layer of the soil thaws during the warm season. Normal agriculture is not possible.

Taiga is the broad belt of coniferous forest that lies equatorward of the tundra. Spruce, larch, fir, and pine predominate although a few deciduous tree genera are scattered throughout, particularly near streams. The boundary between the taiga and tundra is frequently a broad transition zone. Most taiga soils are infertile and the growing season is short, hence agriculture is unimportant.

The heart of Russian agriculture is the so-called Fertile Triangle, which resembles the American Spring Wheat Region rather than the Corn Belt and suffers from low and variable yields because of inadequate precipitation and short growing season. Its southern tip is at Odessa on the Black Sea—in approximately the same latitude as Duluth, Minnesota.

News reaching the United States late in 1956 indicated that the collective farms

[4] George B. Cressey, *How Strong Is Russia? A Geographic Appraisal*, Syracuse University Press, Syracuse, New York, 1954, p 26.

in Siberia, which Khrushchev staked his reputation on giving the country a more adequate food supply by bringing new lands under cultivation and by inaugurating a vast corn program, were reaping less than a quarter of the crop by the middle of August and only half by the first week in September. Most US farm experts who have visited the Soviet Union during the past few years are of the opinion that each new plan will meet the same fate as those previously tried because the climate over most of Russia is not a first-class one for agriculture.

Farmers Dislike System

There can be no doubt that another very important reason for the shortage of food is the Russian system which goes counter to human nature. All but three percent of the arable land is now collectivized. The three percent belonging to the state remains divided into small plots available as backyards for *kholkoz* families. *But the significant thing is that this three percent produces about 10 percent of the USSR agricultural output in terms of value.* This would appear to indicate that the Russian farmer works three times harder on his own land than on socialized land. Even Dmitri T. Shepilov, Russia's new Foreign Minister, has admitted that collective farmers work more enthusiastically on their private gardens than in communal fields. It thus appears that the peasant farmers are by no means sold on the Marxian ideology, resenting the substitution of public enterprise for private initiative.

The food shortage plus the monotonous diet of grain porridge, beet soup, black bread, and potatoes is making the people increasingly unhappy and unhappy people are more difficult to keep in line.

Poor and Inadequate Transportation

The state of Russia's transport always has been a test of her strength and probably always will be. Much of the internal weakness has resulted from inadequate transportation between the capital and the provinces. This is to be expected in so enormous a country, in one so landlocked, in one where large areas still have almost no inhabitants, and where backwardness held sway over so many centuries. It is estimated that the Soviet Union has only one-fourth the rail mileage of the United States—that the mileage in 1956 was where that of the United States was in 1872. Until quite recently the USSR had but one transcontinental railroad—the Trans-Siberian—and it was a single-track line! The ineffective showing of the Russians against the Japanese in the Russo-Japanese War (1904-05) resulted in no small measure from the fact that this route was single track, the roadbed poor, and communication dependent on ice conditions in Lake Baikal which had to be crossed by ferry when the ice was not thick enough to support the rails and could not be crossed at all until enough ice melted to make it navigable.

Railroads All-Important

With limited trackage the traffic load per mile of track is much higher than in the United States; the lines are crowded with slow trains and are badly overburdened. Most of the locomotives are old fashioned. Yet Russia's railways are of greater importance to the country than is the case in any other nation on the globe. About 85 percent of the total movement of freight is handled by rail, compared with about 50 percent in the United States.

The principal production centers in the past and even now were not favorably located. Coal from the Donbas had to be shipped to Leningrad and to the Urals; oil had to be sent from the Caspian and Transcaucasia all over the sprawling Russian realm; and stone and wood are unevenly distributed. Railway ballast has to be shipped from the Caucasus to the

blackearth region and wood from the taiga to the steppelands. But the north is dependent on the south and Siberia for grain. This distribution of raw materials and food was largely ordained by nature. Hence now, as in the past, the Russians must contend not only with overland haulage but the typical separation by great distances of iron ore and coking coal.

There is nothing in the entire Soviet Union that can be regarded as a railway network. Nevertheless, transport plays a vital role in Soviet policy. As early as 1935 Stalin, addressing a conference of railway *Stakhanovites*, said:

The USSR would be inconceivable as a state without first-class railway transport linking its many regions and areas into one whole.

Highway Mileage Small

The highway mileage, too, is unimpressive—about 480,000 miles compared with 3,000,000 for the United States. Moreover, less than 100,000 miles are hard surface, most of the mileage consisting of mere dirt wagon trails. Reports of American journalists traveling in Siberia in 1956 mention only the dirt roads.

What highway traffic exists is of the short haul type, the Soviets having no long haul transport such as we have in the United States. The ton-mileage so handled accounts for only three percent of the total of all major carriers, compared with 50 percent in the United States.

Water Transport Limited

Even the Russian rivers, which are much used and of which there is a network of 65,000 miles, including canals and lakes, mostly flow in the wrong direction —into seas blocked by ice for a considerable part of the year. Not a single Russian river is usable 12 months of the year. Moreover, there is poor coordination between railways and rivers.

Because of Russia's huge size, the uneven distribution of her natural resources and population, even with the government sublimating the wants and needs of the people to the production of steel and transport, and with the widespread use of slave labor for building railroads, decades will be required to transform the transport geography of this nation of vast space.

With so inadequate a transport system it is little wonder that the Germans, who kept a close record of Soviet transport developments, believed that the Russian rail system could not stand the additional strain of a major war and hence were willing to attack.

Inanimate Power

In civilized nations everyone realizes that energy is the effort behind all productive activity. Except in backward countries, where energy may be supplied by human muscle or by domestic animal, it is procured from inanimate sources—wind and sun, fossil fuels, and falling water. Power from nuclear energy is not a consideration at this time. National strength is thus dependent to a large degree upon energy and a nation lacking it can neither provide for itself in peace nor defend itself in war. The Soviet Union is well endowed with energy, but, unfortunately, energy and population are for the most part not in the same places. Most of the people inhabit that part of the USSR west of the Urals, whereas most of the energy is east of them. This goes far to explain the heavy *forced* eastward migration in the country.

Despite this unfortunate distribution of population and energy, the Soviet Union ranks as one of the four countries (the other three are the United States, the United Kingdom, and Germany) that produce and consume two-thirds of the world's inanimate energy. The United States and the USSR together possess and produce more than half of the world's known en-

ergy. The productive capacity of the Soviet Union has increased more than tenfold since World War I as a result of the planned development of her energy resources. Despite the fact that the United States produces more energy each year than the Soviet Union, it should be emphasized that no other country on the globe possesses known reserves even one-third as large.

From the standpoint of per capita consumption of energy (in thousands of kilowatt hours, electricity equivalent) the United States is ranked 5.0, the USSR 1.0 to 2.5. And this latter figure includes a consumption 10 times or more what it was a quarter of a century ago.

Low Level of Living

The level of living of the Russian people is notoriously low for a country that plays so dominant a role in international affairs. This results in large measure from the attitude of the government in emphasizing heavy industry and military production at the expense of consumer goods. The people are denied even the barest necessities of life in order to sustain the industrial base. Every spurt in heavy industry is made at the expense of the level of living of the great masses of the population who are ill-fed, ill-housed, and ill-clothed. There is little doubt but that the steady stream of propaganda within the USSR is partly motivated by a desire to keep people's minds off their own deficiencies.

It is difficult to see how the diet can be much improved owing to the relatively small amount of really good cropland plus the heavy losses of capital suffered during collectivization, the continuous drain on the agricultural population to supply workers in industry, and soil depletion. Farm production just does not keep up with the normal increase in population. Industrial efficiency cannot be high without proper nourishment. Meat, milk, and eggs are so expensive as to be luxuries.

The average urban family lives in a single room of an apartment, sharing kitchen and bath facilities, if any, with two, three, or more other families living in other rooms. Housing in rural areas is so bad that anything comparable in the United States could be found only in the most remote, isolated, and poorest areas. Usually it consists of shanty wood huts served by outhouses and outside pumps.

Clothing and shoes are high in price in comparison with wages and often are of shoddy quality.

In summing up the picture of the Russian level of living William J. Jorden of the *New York Times* says:

These drab and dismal houses, the rough and ill-fitting clothing, the unexciting diet, all are part of the price that people of the Soviet Union are paying for the dictum that heavy industry and defense shall have priority over all else.

AN APPRAISAL

Placing all the strengths and weaknesses on the scales, the Soviet Union appears to be far behind the United States in those qualities that make a nation a first-class power. Such a type of government as Russia's can accomplish much but the restrictions of great distances, remoteness from the oceans, varied terrain, short growing season, inadequate rainfall, extreme continentality, and the prevalence of permafrost [5] over thousands of square miles dare not be ignored. As far into the future as we can speculate, these deficiencies will leave their mark on the land of Russia.

If the USSR has any marked advantage over the United States, it is her greater output of scientists and engineers. It is inconceivable, however, that the United

[5] Permafrost is permanently frozen ground and underlies about two-thirds of the Northlands. In permafrost areas there is a surface layer, ranging in thickness from six inches to seven feet, which thaws in summer. The thickness of the permafrost varies from a few feet in the southern part of the area to more than a thousand feet in the north.

States would permit herself to become a second-rate power when she could easily and quickly rectify the matter.

With respect to the Soviet Union, Americans must be realists, recognizing that Russians are not supermen who in a decade or so can catch up with or surpass the achievements that in many other nations have been spread over several centuries. We must neither overestimate nor underestimate the Russians.

Is US-USSR War Probable?

National power depends upon a nation's ability to wage war with its own natural resources or with those it can import even in time of war. Six factors contribute to national power:

1. *The population resource.*
2. *The power and energy resource.*
3. *The iron and steel resource.*
4. *Technological know-how.*
5. *Military know-how.*
6. *Aggressive leadership.*

If this is correct, then the United States is the only country in a position to enforce her ideas on any continent anywhere in the world against determined opposition. While the Soviet Union claims "heavyweight" status, she is in reality but a hemispheric power.[6]

The USSR has a blueprint for communizing the entire world—a blueprint from which her attention is never distracted for even an instant. In this plot the Soviet rulers continue to build up their military machinery, already the world's largest. They rule their satellites as puppets, with the bayonet and blood bath always in readiness (witness the cynical and bloody doublecross in Hungary in November 1956). They reject all sensible proposals for world disarmament and intensify their efforts to split and disarm free nations by wrecking their alliances and then exposing them individually to the pressure of Soviet power and to economic penetration and political subversion. Only the United States among all the nations is sufficiently strong to resist. Both ideologies, of course, have alliances.

On a globe or polar map, it is apparent that these two giants are near neighbors. The polar map shows that a possible war would come to the United States (we never will take the offensive nor wage preventive war) by air over the polar region.

Airpower Not Enough

The author does not agree with those students of war who declare that the United States can be *defeated* by airpower alone. This idea of what airpower can accomplish is based upon the assumption that a surprise and overwhelming attack would destroy our industrial power and terrorize the population thereby breaking its ability and will to fight.

Despite the results of airpower at Hiroshima and Nagasaki, the writer believes that airpower depends upon the efficiency of its ground organization and that what counts most is balanced military forces and a flexible strategy. This is not meant to disparage the significance of airpower. Its importance can be indicated no more effectively than to point out that the USSR, despite her rank as the strongest landpower on earth, has of necessity also built up one of the largest air forces and has attempted by every devious diplomatic and psychological method to destroy the major obstacle in her path—American airpower. Possibly the only thing in the world that the men in the Kremlin fear is the United States Air Force.

Airpower destroys, yes, but it does not conquer nor occupy. And a country to be really defeated must be occupied. In order for the Soviet Union to *conquer* the United States, she would have to land several million soldiers on our shores within a three-month period, which, of course, she posi-

[6] Lyle R. Fletcher, "Some Observations on Geographic Factors Basic to World Power Status," *Annals of the Association of American Geographers*, Vol. XLV, June, 1955, p 182.

tively could not do. The only military assignment that might be more difficult would be an American attempt to conquer the vast territory of the USSR.

Actually, a war between these two giants is unthinkable, *barring irresponsible leadership on either or both sides and some incident that might ignite the spark.* Any war between these two countries would of necessity be long, bloody, heart-breaking, wealth-consuming, and would end in a stalemate with complete exhaustion on both sides. Some authorities on atom and hydrogen bombs are asserting that if such bombs should be employed, even human fertility might be destroyed and hence mankind itself. Facing these facts realistically is, perhaps, the best of all reasons why war between them is unthinkable and utterly futile. Obviously, United States scientific and military superiority must be maintained irrespective of cost, since power is the only language the Russians understand and respect.

Probably the United States today has the most powerful over-all military organization in the world—the largest and most modern Navy; an Army that, although relatively small compared with that of the Soviet Union, is highly trained and probably more mobile and mechanized and better equipped with thermonuclear weapons; and a strategic air command believed to be the world's best. Since communism is not sane by our moral standards, we must assume that the USSR would use devastating weapons against us were we too weak to retaliate.

CONCLUSION

Early in this article geopolitics was discussed briefly. What of it in 1957? That Mackinder was a great thinker there can be no doubt. That he displayed true greatness as a geographer, historian, and philosopher there can be no doubt. That the Russians have been employing geopolitics there can be no doubt. The smoothness and speed with which East Europe was consolidated with the "heartland" represents part of a master plan conceived far in advance. No doubt the Russians would seize the "world island" were it not for the United States Air Force. The present map of the Russian-Polish-German space is an exact replica of the map of Haushofer's pivot area. Thus complete fulfillment of the Mackinder equation is within the grasp of the rulers of the "heartland."

Regardless of what one thinks of geopolitics most statesmen and military leaders use it. And while our own plan for peace should continue to be idealistic, it should be, *in fact it must be,* rooted in the hard realities of the world and its peoples. Geopolitics supplies an inescapable frame of reference for realistic thought and action in the realm of power politics. To be sure, it may be used for good or ill, but it is the *manner in which man uses it that determines this.*

Some of the basic facts about the USSR have been presented—facts distilled from the reports of thousands of people, facts carefully culled from mountains of material by competent scholars. The main outlines are clear: the USSR is a huge country with vast potentialities, under dictatorial rule, aggression bound. Obviously, there are large gaps in the picture presented here. Nonetheless, the writer's purpose is believed accomplished—to supply a background to help the reader in his effort to frame a logical answer to the question on every American's mind—Will there be war between Russia and the United States in the near future?

It would appear that the Soviet Union is not in the same league with the United States at the present time and that the Iron Curtain conceals numerous glaring weaknesses. War in the near future does not appear imminent.

Divisional Command in 1960-70

Colonel Frank W. Norris, *General Staff*
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It is of first importance that the soldier high or low, should not have to encounter in war things which, seen for the first time, set him in terror or perplexity.

—Clausewitz

IN MY own military reading I always rapidly thumb through a magazine to note those articles which begin with a quotation from Clausewitz—and then immediately place such articles in last priority for reading. Now I start an article with a quote from Clausewitz. However, in translating Clausewitz to the modern idiom I would pose three questions:

"If you are the division commander in combat in 1960-70, what are the new problems you will face?

"As a division commander in this period, what will be your morale problems and how will you build the efficiency and *esprit* of your troops?

"Even more important, what should the US Army, and you, do now to prepare yourself to solve these future problems?"

In recent years a great deal of study has been devoted to the broad organizational and operational concept for the 1960-70 period, but there has been little written which relates these concepts specifically to the division commander. This article focuses on that relationship and will attempt to answer the three questions in the order they have been posed.

Before proceeding, however, some model of the division and its operational concepts must be set forth. The model developed here represents merely a synthesis of current thought—undoubtedly there are flaws in it, but this model will serve well as a basis for the development of the commander's problems. As an approach, a radical reorganization of the existing division is contemplated, and a correspondingly advanced operational concept is assumed.

The broad operational concept for future combat is well put by Lieutenant General James M. Gavin who commented in the *Army Information Digest* of January 1956:

To meet the challenge of new weapons of war, our concepts of time and space have been expanded. The combat zone in an atomic war will be vastly extended in depth. Combat action will be characterized by fluidity. Units will be dispersed in space, but through greatly increased mobility will be capable of greater concentration for concerted effort in terms of time. On the future battlefield the decisive margin of strength will fall to the side possessing superior mobility to exploit the effects of weapons yielding greatly increased firepower. . . . The

The changing nature of control, firepower, and maneuver and the radically different organization so vitally needed to fight an atomic war strongly recommend the early development of young division commanders

Army should be capable of employing atomic firepower at the battle group level, of engaging and defeating a quantitatively superior enemy through superior tactical and logistical mobility, vastly increased firepower capability, battlefield intelligence, control, and command facilities. . . . To fight successfully on the battlefield visualized for the future, our Army must be mobile not only on the ground but in the air. Units must possess a high degree of mechanization and improved cross-country mobility with lightly armored personnel and cargo carriers. The majority of supplies for the battle area should be delivered by aircraft of the assault cargo and convertiplane type, and tactical transport of units into and within the battle area must be accomplished by basic reliance placed upon aircraft and fast-moving naval vessels.

Relating these concepts specifically to the organization of the 1960-70 division we foresee a universal division designed to accomplish any combat role of the Army with only minor modifications to its basic tables of organization and equipment. It will consist of a division headquarters, the general and special staff, and a headquarters unit to protect and administer the headquarters. The combat elements of the division will be a fixed number of battle groups, a number greater than four and less than 10. (For illustrative purposes in this study only, it is assumed that a type division will contain six battle groups.)

Each battle group will be a balanced force of approximately 1,500 men, to include infantry, armor, and artillery units with necessary detachments of combat and service support troops. Firepower, both conventional and low-yield atomic, will be provided for the battle group by organic rockets, short-range guided missiles, or light artillery, but heavier fire support, both conventional and atomic, will come from a single divisional artillery battalion or from corps or army. Divisional artillery headquarters and regimental (combat command) headquarters will have been eliminated. The conventional medium or heavy tank will not be organic to the division, armor support for the battle group being provided by organic air-transportable "tanks" weighing not more than 10 tons.

The division will be completely air transportable and will attain a high degree of cross-country mobility by employment of lightly armored personnel and cargo carriers. Division headquarters will be tactical only. Administrative and logistical support will be provided directly to battle group by the field army support brigade organic to corps. Corps will be both an administrative and tactical headquarters and normally will command four or more divisions.

Centralized Control

Operationally, the six battle groups will employ organic nuclear and conventional firepower in the conduct of fluid, highly mobile operations. Control of these operations will be vested directly in the division commander. Technically, this control will be facilitated by—in fact, will be largely dependent upon—a grid system of communications which will provide electronic facilities for transmittal of the commander's will. Intelligence, at the divisional

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echelon, will be derived from agencies within the division (primarily the battle groups) and from a comprehensive surveillance system centered at corps and army. Battle groups will be dispersed and disposed in depth in order to avoid heavy losses under atomic attacks and to absorb enemy offensives. These units will "mass in time" for critical operations by using their versatile mobility.

In the offensive, operations will be characterized by initial dispersion, by the rapid concentration of two or more battle groups to seize an objective (in conjunction with atomic firepower and ground maneuver to neutralize hostile opposition), and by the rapid dispersal of battle groups after seizure of the objective. At the divisional echelon objectives commonly will be hostile troops and nuclear delivery capabilities; terrain and communications centers will be of lesser importance.

On the defensive, the division commander will dispose the battle groups in depth so as to channelize hostile attacks into areas where nuclear and ground counterattack can be employed successfully. He must anticipate massive nuclear attacks followed by deep hostile penetrations which may isolate or surround his division for considerable periods. Under such conditions, corps or army must conduct the general counterattack to destroy the enemy and restore the situation.

Turning to the first question, "what new problems will face a division commander in 1960-70," there are an infinite variety of approaches, since the problems of a division in combat are as varied as combat itself and are as unpredictable as the personalities of soldiers. In the interest of simplicity a functional approach is taken here. The basic problem which has always faced the division commander in combat is: "How do I *control firepower* and *maneuver* to get my objective quickly with least harm to my division while hurting the enemy the most?" Hence the three basic determinants of combat, from the division commander's standpoint, are control, firepower, and maneuver. These determinants form the framework for this discussion.

THE COMMANDER AND CONTROL

One of the most provocative writers on future warfare, Mr. J. W. Johnson of Operations Research Office, highlighted the increased importance of control in his statement: "To the two accepted principal determinants of battle (firepower and maneuver) must be added a third—control." Before appraising this vital element, we should note certain techniques or conditions of future warfare which will assist or hinder the control function.

Prominent among the aids are technological advances in signal communication —particularly the grid system which should permit rapid radio communication between all elements of the division, and the improved information and intelligence systems which provide the commander the essential knowledge on which to base his decisions. From an operational standpoint the future division commander should be able to focus his attention on tactical control because corps and the support brigade will handle the bulk of the logistical and administrative problems. Finally, the helicopter and cross-country vehicles provide the commander an extraordinary degree of mobility in exercising personal control.

Communications a Problem

On the debit side of the control ledger, certain technological limitations—particularly the vulnerability of communication systems to electronic countermeasures—will severely restrict the reliability of radio, and wire communication between dispersed units will be difficult to install and maintain. The division commander now faces a requirement for greater speed and precision in control of his subordinate units, yet these units are more widely dispersed and more fluid in movement.

Also, the organizational pattern established for the future division increases the commander's span of control—he will directly command approximately six battle groups, with no intervening subordinate headquarters.

In controlling the combat actions of his division, the commander actually performs three functions: he commands, he coordinates, and he supervises. Although it can be claimed that command is his essential function and that the staff has major responsibility in the other two, the best commanders weld the three into an effective entity. When viewing the commander's future problems in each of these fields, the impact of the increased span of control must be emphasized.

More Strain on Commander

Under conditions of greater tactical complexity, the division commander must now command (that is, issue direct orders to) approximately twice as many units as heretofore. Admittedly, technological advances will assist him in making his will known, and it is expected that the division commander will decentralize to his battle group commanders whenever possible. However, the fundamental command problem of determining *what*, *where*, *when*, *how*, and *why* for the increased number of units is not markedly alleviated by technology, nor is it adequately solved by decentralization. Hence greater and more continual strain will be placed upon the commander's decision-making capability.

Similarly, the division commander may find himself overtaxed in accomplishing his coordination function. As the number of units under the commander is increased, the problem of coordination becomes disproportionately greater and hence more difficult. Taking an arithmetic approach—if a commander controls three units, he uses three command lines and three coordination lines. If his span of control is doubled to six units, he then uses six command lines, but the coordination lines have increased disproportionately to 15 (Figure 1). Although an obvious oversimplification, this example is a valid indication that the division commander faces a real problem in coordinating the actions of his battle groups—*this is particularly important because exact coordination of battle group actions is vital to success in future combat.*

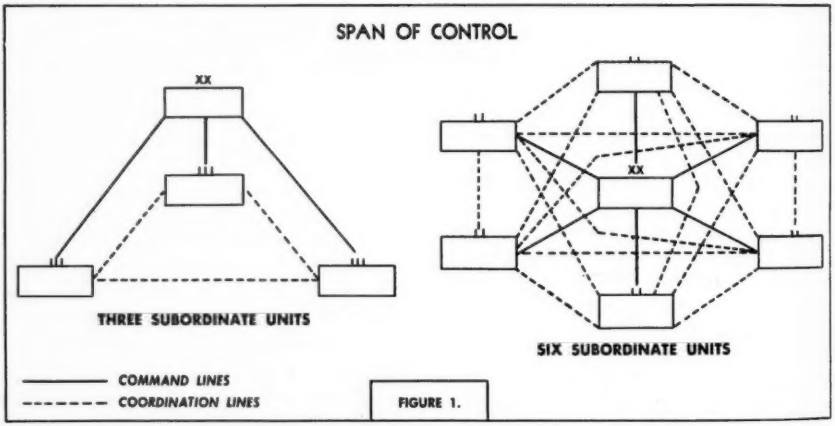

FIGURE 1.

Supervision of combat action is the one area of control wherein the future commander may be in as favorable a situation as in the past. Theoretically, he has more units to supervise (six battle groups versus three regiments); but it is almost axiomatic that the best division commanders of World War II supervised the combat of battalions, not of regiments. The regimental echelon was not bypassed; but the best commanders realized that the real grasp of a combat situation could only be obtained where the combat was occurring —hence they went to the battalion. The future commander now has a personal mobility, such as that provided by the helicopter, which permits him to visit his dispersed battle groups without marked strain. The only detrimental aspect is the higher degree of personal risk incurred by trips over or through territory not firmly under friendly domination.

Fewer Formal Orders

In controlling his units, the basic tool of the commander will continue to be the operation order; for the order, whether written or verbal, complete or fragmentary, remains the ultimate expression of the commander's will. The nature of the operation order, however, will differ considerably from the relatively precise definition of objectives, times, phases, and forces that characterized infantry division operations in World War II.

The division commander must expect to receive, and to issue, mission type orders which approximate directives, because the fluidity of the situation will preclude specific details. This necessarily fuzzy and indefinite order will place a large premium on the initiative, deductive power, and combat intuition of the battle group commanders, and the division commander must grant them a high degree of independence and decentralization.

Nevertheless, the division commander must be able to assert a closely centralized control at critical periods of combat, especially during the delivery of nuclear fires and the "massing in time" of the battle groups. This control can best be attained by fragmentary orders which are extremely specific. Compliance with these orders must be so instantaneous as to be almost a reflex action. Such a control system was occasionally characteristic of outstanding units (particularly armor) in some World War II actions, but it is a wide departure from the norm of past divisional practice.

Less Depth of Command

A final aspect of control which is particularly significant to the division commander is that of continuity of command. Two factors make the attainment of continuity more difficult than in World War II. Casualties from battle action and combat exhaustion will be radically higher among division commanders, the general staff, and battle group commanders. Organizationally, the new division lacks depth in command strength because there is no command echelon between division and battle group. It appears that at a time when combat demands greater flexibility and reserve strength in command the division commander has fewer means to meet the requirement.

In the event the division commander and/or his staff become casualties, a severe disruption to the division's command structure will result. This disruption can only be alleviated, but not avoided, by the prior establishment of a clear-cut succession to command and by the designation of alternate, skeletonized staffs. This alternate command system should incorporate the views of the corps commander, be thoroughly understood in detail by subordinate commanders, and should be implemented as an SOP matter to prevent control of the divisions' operations from being shattered by the loss of key personnel.

THE COMMANDER AND FIREPOWER

During World War II the division was the focus of the field army's firepower, with the organic firepower of the division supported by corps artillery and tactical air. Now, both corps and army possess atomic weapons and organic delivery means which dwarf those of the division. Furthermore, each of these higher echelons can employ its weapons, immediately and independently, to achieve major battlefield results. Thus the division commander must recognize that corps and army now have a fire capability which, of itself, gives these echelons a dominant and continuing role in tactical combat. The net effect of this shift may well be to make the fire plans of the division primarily dependent upon those of corps and army rather than the reverse situation which existed in World War II. Therefore, the division commander must be particularly alert to the greater requirement for coordination with these echelons.

Comparably significant changes have occurred with respect to the organic firepower of the division. Here, the dominant and obvious factor is the exponential increase in the kiloton delivery capability of each battle group; the sheer magnitude and potency of this firepower requires a reorientation of the commander's role in its employment. If he is to avoid the wasteful, uncoordinated, and dangerous use of atomic firepower by individual battle groups, the commander must exercise a more personal, immediate, and discerning control of organic firepower than in past combat. (Subsequent paragraphs on fire planning will further develop this point.)

Concerning conventional firepower, the division commander probably will face a situation where, although the aggregate kiloton capability of the division far exceeds that of World War II, the conventional light and medium artillery capability has been decreased by the reduction in numbers of such weapons and by elimination of division artillery from the organization. Future warfare probably will require conventional firepower to accomplish such missions as:

1. *Close* support (50-100 yards) for friendly troops in the assault and in defense against hostile "hugging" tactics.

2. Neutralization of small enemy forces which do not justify expenditure of atomic weapons.

3. Covering of gaps between units to prevent large-scale infiltration.

4. Protection of patrols, listening posts, and outguards.

5. Conduct of harassing and interdiction fires.

Although such fires may not be of great importance at higher echelons, they do have a major influence on the ability of the battle group to engage successfully in close combat and they contribute materially to the security and morale of the battle group, particularly at night and under bad weather conditions.

The commander must recognize that, although he has a bigger big bang than he ever had before, his smaller small bang may hinder the combat effectiveness and battlefield capability of his units. He should minimize this difficulty by obtaining conventional artillery support from corps when feasible, by getting as much conventional ammunition for divisional use as possible, and by exercising close and conservative control over its expenditure.

Planning Complicated

The preparation of a divisional fire plan can serve as a simple case illustration of the changed part of the division commander. In World War II, after the division commander decided upon a scheme of maneuver or defensive dispositions, the preparation of a fire plan was a relatively simple matter which demanded little of the division commander except a perfunctory "OK." The simplicity of the normal fire planning process was derived from several tactical conditions: most often

units were disposed on essentially linear fronts, flanks and rear were secure, combat was directed to the front, few major gaps existed between units, maneuver was at foot or slow vehicular pace, the tactical situation was relatively apparent and stable, higher echelons (corps and army) had little immediate impact on the fire plan, and firepower itself was massed TNT.

Now, each of these conditions has changed radically: units are widely dispersed in depth, flanks and rear are unprotected, combat is 360°, gaps are normal, maneuver is rapid, the situation is volatile, and firepower is essentially atomic.

To illustrate the changed problem, Figure 2 is a simple schematic drawing of a typical fire planning situation in World War II. Figure 3 forecasts a comparable future situation. A casual comparison of the charts indicates how much more complex and difficult the future plan will be, yet this fire plan is so important that it will require the close and continuing attention of the division commander. He will be particularly concerned with two portions of the plan: "How do the fire plans of corps and army affect my division?" and "How are the fire capabilities of the division coordinated to cover gaps within the position?"

THE COMMANDER AND MANEUVER

Concerning this third determinant, a primary consideration is the changed relationship between firepower and maneuver, because this relationship is fundamental to the employment of the division. In World War II the division commander usually estimated a situation, decided upon a scheme of maneuver, and then tailored the available firepower to assist the scheme of maneuver. Although massed conventional firepower was essential, firepower had less relative weight than maneuver in determining the operational plan. Now, atomic firepower can achieve decisive battlefield results and thereby permit the adoption of more daring and profitable schemes of maneuver. For example, in a given World War II situation the strength of hostile resistance to the front required

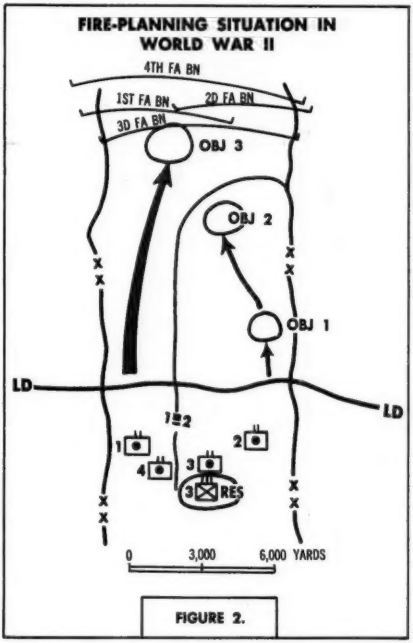

FIGURE 2.

Missions for Div Arty in this typical situation:

1st FA Bn (105-mm): Direct support 1st Inf.

2d FA Bn (105-mm): Direct support 2d Inf.

3d FA Bn (105-mm): General support, prepared for direct support of 3d Inf when committed.

4th FA Bn (155-mm): General support, reinforce fires of 1st FA Bn.

Comments

Simple scheme of maneuver executed within definite boundaries, and designation of objectives within range of organic artillery, permit precise fire planning with firm coordination of fire and maneuver.

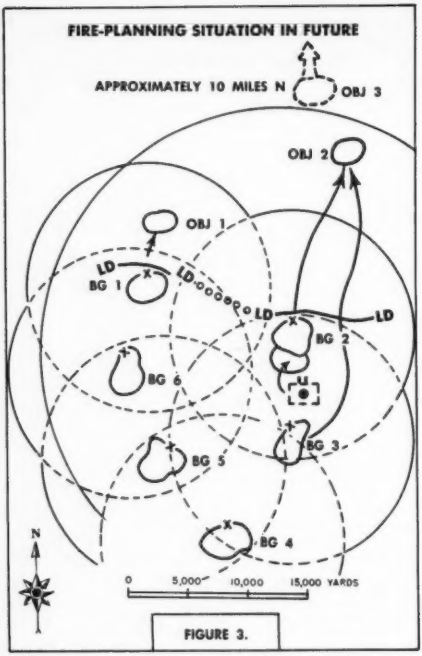

FIGURE 3.

Legend:

Arcs indicate approximate zones of fire of organic battle group firepower. (Assumed 10,000-yard range.)

Largest arc indicates approximate zone of fire of organic division artillery battalion (if any). (Assumed 20,000-yard range.)

Situation and Plan

1. US division in defensive-offensive disposition. Defensive mission is to force enemy into killing zone. Offensive mission is to be prepared, on order, to attack and seize Obj 1, 2, and 3.

2. a. BG 1 seize Obj 1 by infantry action.

b. BG 2 and 3 seize Obj 2 by armor action.

c. BG 4, 5, and 6 seize Obj 3, employing helicopter transport. Attack of this objective will be supported by fire from corps and army.

Comments

Fire planning extremely difficult because:

a. On defense, zones of fire of organic battle group artillery overlap and interlock, particularly within the killing zone.

b. On offense, organic divisional weapons do not have range to fire on Obj 3; so corps and army must provide initial support for this attack.

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the commander to employ a time-consuming ground envelopment. In the future it is probable that similar hostile resistance can be neutralized by atomic firepower and the division commander can direct a rapid penetration or vertical envelopment. Stated differently, the priority of problems facing the World War II commander was:

1. "What is my scheme of maneuver?"
2. "How do I support it with firepower?"

The future priority may be:

1. *"How do I best employ firepower?"*
2. *"What is my best scheme of maneuver, considering the firepower available?"*

In furtherance of this thought, the division commander must now concern himself particularly with the coordination of the *maneuver of his division* with the *firepower from higher echelons.* Because the increase in divisional mobility will outstrip the range of organic firepower, corps and army must provide the principal fire support for the divisional attack against deep objectives. Similarly, this coordination is of critical importance in defensive combat when deep enemy penetrations into and through divisional sectors will require decisive action by corps and army. It must be emphasized that coordination in this field should be carried out by both command and staff echelons, on a continuous basis, and that specific details (such as yield, height of burst, timing, and method of delivery) must be resolved before divisional maneuver can be initiated.

Much More Mobility

Viewing maneuver in the restricted sense of mobility, the future division's battle groups will be able to move by a variety of methods—transport aircraft, helicopter, aircraft and parachute, cross-country

vehicles, road vehicles, and on foot. This versatility requires that the division commander have sufficient background, experience, and tactical acumen to decide what particular method of mobility will be used in each combat situation. Although this decision occasionally may be delegated to battle group commanders, the division commander usually will retain the prerogative of making this significant selection.

In the past, the division commander could be an "expert" in the mobility of one type of division—infantry or armored or airborne; now he should be accomplished in all. Even more difficult, he must be able to employ two or more types of mobility concurrently; for he may use several battle groups in a vertical envelopment while employing others in cross-country maneuver, or in other combinations of this varied mobility. The virtuosity of the division commander in the correct employment of this mobility will determine, in large measure, the ability of the division to "mass in time" rather than in space, and the ability to so mass will be essential to successful application of future operational concepts.

The increase in divisional mobility also may confront the commander with a basic question which did not often plague commanders in the past: "When do I fight and when do I maneuver?" Under the more measured combat of World War II this was a fairly predictable matter. Under the dispersed, fluid, rapidly changing warfare of the future the commander may be able to accept or avoid decisive combat with greater freedom. This freedom exacts its price, for the commander must possess extraordinary tactical sense, analytical ability, combat intuition, and sense of timing if this liberty to maneuver is not to become a license. In particular, the commander must avoid Stuart's mistake at Gettysburg—neither the division nor any of its battle groups should be engaged in spectacularly profitless maneuvers when the decisive combat is joined. If the ability to maneuver is misused, divisional combat will degenerate into insignificant raid type operations which lack both the cohesiveness and the sense for the objective which are fundamental to successful ground combat.

COMMANDER AND HIS MEN

Considering the second question posed at the beginning of this article, the relationship of the commander to his men—the great intangible of command—also will change under the impact of new concepts. J. F. C. Fuller states the key to these changes: *The more mechanical become the weapons with which we fight, the less mechanical must be the spirit which controls them.*

The element which will bind troops together under the mechanistic technological conditions of future war will be the spirit of the commander—a spirit expressed through an aggressive, dynamic, lively, decisive, and individualistic attitude. During combat (and also in mobilization and training) he will have a minimum of time to impress his personality on his men and will have to avoid the distant, by-the-numbers, impersonal approach which was employed, with some adequacy, by many World War II commanders. He will have to seek ways consciously to identify himself as an individual in the eyes of his troops and to emphasize the personal element in command.

In combat the personal element is communicated to the troops most effectively by active visits to subordinate units and the hotter the combat the more salutary is the effect of an appearance by the "old man." S. L. A. Marshall already has defined any future division commander who might utilize his surveillance and communication systems exclusively in a "push-button" type warfare, scanning a TV screen instead of seeing, feeling, and knowing combat at the critical time and place:

"Out of sedentary generalship arises the evil of troops which, while obeying mechanically, have no organic, thinking response to the will of the commander."

Share Common Danger

Although technological devices may encourage a tendency toward command at a distance, certain conditions of future combat should establish a closer bond between the division commander and his men. Nothing creates a community of interest and understanding like a common danger mutually shared. In World War II, division headquarters was relatively immune to direct attack by ground troops and indirect attack by artillery or air was usually sporadic and ineffectual. To the combat troops, division headquarters was a "they" which lived well, slept a lot, and issued orders (some sensible and some otherwise).

In the future, division headquarters will risk atomic attack, guerrilla attack, and infiltration on a scale equivalent to that of the battle groups and it will share the battle group's probability of being overrun or surrounded in major enemy actions. Whatever the impact of these conditions may be on the efficiency of the division commander and his staff, both the commander and his troops will attain a genuinely mutual understanding of the survival problem.

On the debit side, increased vulnerability of the command post, and of the commander, will impose a heavy physical and psychological strain on the commander. The relative comfort and safety of the World War II division command post gave the general a place to rest, to revive, and to prepare himself and the command for the next day's combat. If future essential standards of austerity and security are observed, the division command post will be a much less comfortable place and the commander will have to call on previously filled reservoirs of personal strength to overcome the more continuous battlefield pressures. In dealing with his troops, the commander will be particularly concerned that his personal stress not be communicated to them. In the words of General Montgomery:

Probably one of the greatest assets a commander can have is the ability to radiate confidence in the plan and operations, when inwardly he is not too sure about the outcome.

Morale More Important

The problem of instilling confidence in troops raises the broader issues of morale and *esprit*. Since man first engaged in combat the importance of these two factors has been recognized, but future warfare gives them new significance. If we accept Johnson's premise that the object of atomic combat is "disorganization through demoralization," and if we pit equivalent forces against each other, those troops with the higher morale should win out. Thus a major task of the division commander will be to create combat-worthy morale in the face of environmental conditions which are manifestly more challenging and difficult than in the past.

These conditions bear some analysis because many of them have an inherently unfavorable effect on morale and *esprit*. For example, the mechanistic, impersonal, and technological character of future warfare will tend to deprive the American of his cherished individuality. The increased tempo of combat will magnify physical and psychological fatigue. The loss of entire units and staffs will tend to demoralize surviving units. Individual fear of becoming an atomic casualty may create an attitude of "Why bother? My number is next." And the confusion and violence of combat will, as always, provide an excellent breeding ground for wild rumors.

The nature of combat itself will strain the morale of the American soldier. He prefers to fight in daylight, but much combat will be at night. He is gregarious and

has a strong instinct for self-preservation and dislikes to be cut off or surrounded. He is not naturally expert in patrol and raid actions. He is not mindful of local security. He is extremely weak in communication security. He may not receive the high minimum of creature comforts which he requires in order to remain effective. And he will be subjected to hostile propaganda of great force and deftness.

No Regimental *Esprit*

Adding to these unfavorable conditions, the organizational pattern of the new division will not facilitate the creation of *esprit*. The new organization abandons the regimental echelon which, throughout the US Army's brief but splendid past, has provided an organizational center for individual and unit loyalty. Under such conditions the division commander will have to create *esprit* from the ground up.

In these adverse circumstances, the commander will build morale and *esprit* on the same two classic foundations which always have supported these elements—absolute confidence by the soldier in himself and his leaders, and each individual's belief that he belongs to a competent fighting unit. The way he solves this problem will remain, as it has throughout history, the truest individual test of the combat commander. In meeting this test it is essential first that the commander put morale into proper perspective *vis-à-vis* the more tangible factors of battle such as firepower, relative strengths, and weather. He must recognize that morale of itself cannot accomplish miracles nor can it exist for long if his division suffers continuing reverses. He must accept the wisdom of S. L. A. Marshall's statement:

Among fighting men, morale endures only so long as the chance remains that ultimately their weapons will deal greater death or fear of death to the enemy. When that chance dies, morale dies and defeat occurs.

Raw Material Is Good

In this admittedly gloomy picture of the morale and *esprit* situation, the commander should recognize one bright and decisive figure—the American soldier. It is not necessarily true that the American is instinctively the ideal combat soldier. In fact, he has certain inherent defects which, if not corrected, could be most damaging in future combat. However, there is evidence that the American soldier, properly led, is better endowed with the basic characteristics required for success in future combat than the Russian or Chinese Communist. Future combat will stress initiative, aggressiveness, individuality, mental stamina, technological ability, mechanical aptitude, physical ruggedness, inherent discipline, and the ability to live and fight with minimum resources. Only in physical ruggedness and the ability to soldier under marginal conditions is the American initially inferior, and the commander can, by insistent development, train his troops to overcome these two comparative weaknesses.

Thus it seems that the United States division commander can enjoy the cold comfort of knowing that, however difficult his task may be, the Communist commander has a tougher job. Or, stated positively, if the United States commander gives his troops the caliber of command which their basic talents merit, he will automatically create the morale and *esprit* conducive to success in future combat against Communist troops.

DEVELOPING DIVISION COMMANDERS

The previously discussed changes in the nature and scope of the division commander's responsibilities are of such significance that revision of the existing system of developing commanders should be considered and thus we take up the third of the questions posed at the beginning of this article.

The present career management pro-

gram, set forth in Training Manual 20-605, *Career Management for Army Officers*, provides a sound basis for discussion as to what revisions may be necessary in the system for developing commanders. In evaluating the effectiveness of the present program it is only fair to state that it does establish a sound guide for the consecutive development of today's commanders. Although few officers can point to careers which exactly follow the prescribed pattern—most are heavy in staff duty and light in command or out of balance in other respects—the program does provide an over-all career pattern and has developed well-qualified officers capable of efficient command of present divisions. As a matter of interest, there is a high correlation of program prediction to actual performance, at least in timing of the end product. The program predicts that officers will be prepared for high battle command *after* approximately 26 years' service. Actually, the average length of service of the 19 division commanders in the Active Army in the spring of 1956 was 30 years (average age 53).

Despite its general adequacy, the existing program fails to meet today's requirements in one critical respect. *The amount of command and troop duty for field grade officers is distinctly deficient.* Consider the infantry, armor, and artillery officers of the 1955-56 Army War College class as a statistical sample of potential division commanders. During the 10-year period 1945-55, these officers averaged 12.1 months (approximately one-tenth) of their service in command or staff duty with divisions or corps combat troops. An even more disturbing statistic is that 32 percent of these officers had no troop duty at all during this period. Admittedly, many of this 32 percent group were officers who had brilliant and extensive combat duty during World War II, but even the finest commander will lose his edge in 10 years of command inactivity.

Develop Younger Leaders

In developing division commanders for combat in 1960-70, the Army should first determine the probable age group from which they will come. Every aspect of future combat appears to lay greater stress on the physical stamina and ruggedness of the division commander. His life in combat will be a continual crisis, characterized by lengthy periods of extraordinary activity and only momentary opportunities for rest. Comparatively, the physical strain on the future division commander may be roughly equated to that of the infantry battalion commander of World War II. Under such circumstances, youth is the keynote and the competent division commander *in combat* probably will be found in the lower portion of the 35-45 age group. Generals Gavin and Robert T. Frederick, each of whom brilliantly commanded divisions at the age of 37, were the prodigies of World War II but their youth and their talents should typify the norm—not the exception—for future combat commanders.

Further, youthful commanders must be selected and developed *prior* to the outbreak of hostilities because the time element in future war will not permit the post D-day seasoning which created commanders like the two cited here. It will be both infeasible and undesirable to give *peacetime* divisional command to officers in the 35-45 age group, but the current developmental effort should be focused on the 25-35 age group as containing the potential combat commanders of 1960-70.

If changes in organization and operations are as far-reaching as forecast, and if these changes occur as rapidly as expected, the Army faces a unique challenge in developing these commanders. The major problem is how to maintain proper balance between advances in doctrine and the proper training of officers in this changing doctrine.

It will profit little to have the most en-

lightened concepts for divisional combat if these concepts outstrip the training of the officers. Much can be done by accelerating the existing system for preparation and dissemination of training literature. Under current conditions the emphasis is on perfection of doctrine—an emphasis which is most commendable but time-consuming. *Future conditions demand that perfection be sacrificed for general soundness, applicability, and timeliness.* Specifically, prompt and wider dissemination of tentative doctrine will permit interested officers to retain a current knowledge and awareness of changing thought. As a corollary, the early publication of the results of maneuvers, field tests, war games, and unit reorganizations will serve the same necessary end.

Within the service schools the principal mission must continue to be to instruct in *current* doctrine, regardless of how tempting it might be to devote considerable time to the future. However, today's graduate will be better prepared, both for his present and future assignment, if an appropriate portion of the curriculum is devoted to the crystal-ball gazing toward future combat. This activity should occur only at the end of the course, it should be brief, and it should be expertly monitored. Otherwise, it will serve to confuse rather than to orient and stimulate.

More Refresher Courses

In addition to the refresher and orientation courses now given to graduates of branch advanced schools and the U. S. Army Command and General Staff College, an increase in the number of such courses should be a lucrative method of keeping officers abreast of new doctrine. For example, it might be desirable to conduct refresher courses at USA CGSC when major organizational and doctrinal adjustments have been finalized. Alternatively, the schools might send instructional teams to major headquarters to refresh past graduates if the doctrinal changes do not merit the formality and cost of a resident refresher course.

Finally, the potential commander must maintain current proficiency in changing doctrine by personal study. The heavy workload placed upon outstanding officers today severely restricts the opportunity for such study, but the problem of keeping officers up to date by other means may be so difficult administratively, from Department of the Army standpoint, that individual study and preparation will remain the best solution. Here, the words of two outstanding combat leaders, General Matthew B. Ridgway and General Lucian K. Truscott, give us guidance. General Ridgway says, "For over all the years of my service one firm resolve had motivated me—that whatever happened, I should be ready." He drew his guidance from Housman's verse:

> The thoughts of others were light and fleeting,
> Of lovers greeting, or luck or fame,
> But mine were of trouble and mine were steady
> And I was ready, when trouble came.

In differing phraseology General Truscott has said: "If you want to command troops, you must think, and live, and breathe command." The future division commander, who must be able to accomplish a more difficult training and leadership task in less time than his World War II predecessor, should follow these precepts to the letter.

Troop Duty Essential

Closely allied to the problem of learning new doctrine and techniques is the problem of practicing them. Here, the only solution is actual duty with troops. Education can provide the background, but only troop duty can give the commander the ease and confidence essential to battlefield command. The US Army presently is blessed with a tremendous backlog of experience and know-how from World War II and Korea, but, even so, command time

is inadequate to maintain a high level of proficiency in *present* organizational and operational concepts.

Unless future commanders have more opportunity for troop duty than they have enjoyed during the last 10 years, they will, as a group, be utterly inept in the application of new concepts. As a bare minimum, at least one year out of each three years should be with divisional troops if a commander is to maintain adequate proficiency during this transition period. Although it would be desirable to give this amount of command duty to each infantry, artillery, and armor officer, the arithmetic of the situation is insurmountable (there is a total of approximately 2,500 colonels in this group, and a total of approximately 170 troop duty positions for these officers). Since it is highly improbable that the number of troop duty positions can be substantially increased, *the apparent solution is to reduce the total number of colonels receiving assignments to troop duty, with a corresponding increase in amount of troop duty for those selected as potential commanders.*

In essence, the situation demands a departure from the existing system of generalized mass training wherein specialization between staff and command is avoided, and calls for the early selection of potential commanders with an inevitable degree of specialization for each officer so selected. Unattractive though this may be from the standpoint of morale and tradition, it seems to be the only way to maintain even minimum command proficiency during this period of evolving concepts. Perhaps this solution will be more palatable if viewed in the light that it also tends to create a corps of professional general staff officers composed of outstanding officers who are not selected for development as battle commanders. But a fundamental in the selection process is that priority must be given to the potential commander, rather than to the staff officer, during the critical years ahead.

Versatility Important

Effective command of tomorrow's division will require a broader background of tactical training and experience than was necessary for the command of a type division of World War II. The future commander must be highly proficient in infantry, armor, artillery, and airborne operations—a proficiency which should be derived from actual service with these different elements. Although airborne may be the dominant element in future combat (General Taylor has said: "The tactics of the airborne troops may be the future tactics of the army"), the training of future commanders must point toward versatility and over-all competence. By such training the commander can learn the small unit tactics and techniques of each arm and, even more important, he will learn to recognize and understand the varying temperaments of these arms. He will be able to blend and amalgamate the tenacity, endurance, and fortitude of the infantry; the dash, shock action, and aggressiveness of the armor; and the *elan*, individualism, and resourcefulness of the airborne. Only through such training and knowledge can he be really equipped for battle command of a universal division.

In considering specific measures to achieve this broader training, one drastic action immediately presents itself—the establishment of a single branch of the combat arms. However, this move has such far-reaching consequences in fields not pertinent to this article that no attempt will be made to analyze its over-all merit other than to indicate its probable effectiveness in providing better qualified officers at an earlier career date. Two less significant measures, designed to achieve the same end, would be mandatory airborne and Ranger training for infantry, armor, and artillery officers (Regular and Reserve on extended active duty) at an early point in their careers and the allocation of not less than 30 percent of the

instructional hours of the branch basic and advanced courses to instruction in the other combat arms.

Finally, for those officers selected as potential commanders, extensive cross-education should be achieved through attendance at the basic and advanced courses of arms other than their own—a cross-training to be completed by not less than six months of troop duty with each of the other two branches prior to attendance at USA CGSC.

In an over-all assessment of the foregoing suggestions for developing future commanders the considerable disadvantages inherent in each measure must not be ignored. To list but a few of the more obvious:

1. In concentrating on youth we lose the present command capability of many superb older officers and we damage the morale of a vital group in the officer corps.
2. In selecting certain officers for specialized training in command we tend to split the officer corps into command versus staff factions with possible result in friction and morale problems.
3. In achieving versatile, broad-base education and training we tend to create officers who are Jacks-of-all-trades and masters of none.
4. Finally, in adopting these measures the Army would, *for the short term*, undergo considerable administrative difficulty and, in some instances, combat effectiveness would be reduced.

These factors, and many others, militate against revision of the existing system.

However, this analysis of the problems facing the future division commander forces us to these broad conclusions:

1. The organizational and operational concepts for the 1960-70 division impose significant new responsibilities on the division commander.
2. Present training simply will not prepare him to meet these new responsibilities.
3. The required revision of the present system cannot be accomplished by half measures and minor readjustments.

Under such circumstances, the adoption of positive measures along the guidelines indicated above is essential if we are to develop competent division commanders for the 1960-70 period.

CONCLUSIONS

The division commander of 1960-70 will face problems which will differ radically, both in nature and magnitude, from those of the past. Certain conclusions can be drawn from the preceding analysis of three of the most important problem areas of divisional command in 1960-70:

Determinants of Combat

Concerning the division commander and the determinants of combat the following changes in the role and responsibilities of the commander are of particular significance.

Control

Increased span of control will demand more frequent decisions by the division commander, and will greatly magnify his coordination responsibilities. However, personal supervision of combat action, a function which remains vitally important, will be facilitated by technological developments and by the increased personal mobility of the commander.

Division operation orders usually will be of the directive type and will require highly decentralized battle group actions. However, these directives will be supplemented by fragmentary orders demanding precisely coordinated, reflexive compliance.

Continuity of control will be extremely tenuous. To prevent fracture of divisional control in battle, the firm designation of alternate commanders and staffs, in depth, must be routine.

Firepower

Organic nuclear firepower, newly available to corps and army, will give these

echelons a dominant, immediate, and continuing role in tactical combat.

Within the division the commander will have three new problems: control of the organic atomic firepower of the battle groups; provision of adequate conventional firepower to attack targets not suitable for atomic weapons; and delivery of fire upon deep divisional objectives which are beyond the range of organic divisional weapons.

Maneuver

Because on many occasions daring and decisive maneuver will be made possible by firepower, the commander must consider firepower as a principal factor in determining his scheme of maneuver.

The versatile mobility of the division will require the commander to be expert in coordinating the maneuver of individual battle groups, each capable of employing different methods of transport.

The division commander's decision concerning when to fight and when to maneuver will present a new and weighty variable in divisional combat.

The Commander and His Troops

Concerning the relationship of the division commander with his troops, future combat will demand extraordinary dynamism, aggressiveness, and individuality on the part of the division commander. Although technological developments facilitate sedentary generalship, sedentary generalship will invite disaster.

The division commander will undergo the same personal dangers and discomforts suffered by the combat troops. This situation will create a closer bond with the men, but it also will impose a terrific physical and psychological strain on the commander.

The environmental and organizational conditions of future combat will cause a marked increase in the commander's difficulties in establishing morale and *esprit*. However, the American soldier, if properly led, is particularly capable of adapting to the demands of future combat.

Developing Division Commanders

Concerning the problem of developing future division commanders, the present system is minimally adequate to meet today's requirements. Substantial revision of this system is required in order to prepare future commanders for their changed responsibilities. Specifically, the following revisions should be accomplished.

The current developmental effort should be focused on those officers presently in the 25-35 age group as the potential division commanders in combat in 1960-70.

All infantry, artillery, and armor officers cannot receive sufficient troop duty to acquire proficiency in new concepts, so a group of potential commanders must be selected now and given intensive training.

The training of future division commanders should provide broad and extensive background in each of the combat arms to include mandatory airborne and Ranger training, extensive cross-schooling through attendance at service schools other than those of the basic branch, and extensive cross-training through actual troop duty with units not of the basic branch.

In order to keep officers abreast of current doctrine during this period of changing concepts, greater use must be made of tentative doctrine; the results of maneuvers, field tests, and war games should receive early and wide dissemination; an appropriate portion of the curriculum at each service school should be allocated to crystal-ball gazing toward future combat; and refresher courses should be conducted whenever doctrinal advances justify their use.

COULD IT HAPPEN?

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THE black top was broken and an occasional pothole added to the driving hazards. The Soviet driver had to devote his entire attention to the road. The other members of the armored car crew were lazily scanning the underbrush that bordered the road running through the apparently sleepy southern state of Georgia. They were not particularly alert as there had been no trouble during the two months they had been leading supply convoys along this road. The remainder of the convoy, 20 trucks followed by another armored car, was strung out back down the road for about 1,000 yards.

Suddenly, there was a loud explosion and the lead armored car tipped over. Seconds later there was another loud explosion and the trailing armored car burst into flames. At the same time, small arms and automatic weapons fire came from both sides of the road. One crew member of the lead armored car, trying to extricate himself from the wreckage, caught a burst of automatic weapons fire in the chest and fell dead. One guard fired two bursts from the machinegun on the second supply truck's ring mount before he was dropped by a carbine bullet between the eyes.

So it went all down the line, until five minutes after the initial explosion every last man, with the exception of two, lay dead in the road or ditches. These two lay in the middle of the road, one with a broken arm from a .30 caliber bullet, the other in the ditch unconscious from the explosion of the last armored car.

A minute or two after the noise of the fight had died and the drone of insects could be heard again on the hot summer air, a motley crew of men, about 20 in number, stepped out on the road and with a thrust of a hunting knife to the heart, methodically ensured that each aggressor was dead. Coming upon the two obviously still alive, both of them conscious and pathetically frightened by this time, several members of the ragged group gathered around them. The guerrillas, for that is obviously what this band was, gesticulated and argued angrily for a moment, then dragged the two soldiers to the nearest tree and strung them up.

The leader of the guerrillas then signaled to one of the outposts he had left on high ground overlooking the road. Two men came down to the road leading four decrepit mules rigged out in a homemade version of a Phillips cargo saddle, crude but efficient. When they had loaded the mules with food and ammunition from the convoy and shouldered a few of the supplies on their own backs, they set fire to what remained of the trucks and supplies and withdrew into the underbrush.

Impossible? Couldn't happen here? Wrong! Who knows how the balance of power will shift during the next 10—or even five years? Although successful in-

Mental and physical preparation for guerrilla activities against an occupying nation cannot be accomplished overnight. We should plan now to utilize our personnel in resistance movements in case of an invasion

vasion of the United States may be extremely improbable, it would be foolhardy to consider it impossible.

Granting that such an invasion of this country by a world power is possible at some undetermined date in the future, would the people who were overrun in this invasion resort to guerrilla warfare? Would they resist the invader, and shouldn't plans be made now for such resistance, to include guerrilla activities?

Historical Examples

Let us examine the question and attempt to arrive at an answer by taking an objective look at the US and her people. First, is there a tradition of resistance to invaders, or to what we consider tyranny of any type? The answer to this question may be found in the histories of the French and Indian Wars, the Revolutionary War, the Civil War, or World War II.

During the French and Indian Wars such men as Robert Rogers and his "Rogers' Rangers" used guerrilla tactics effectively in raids against the French. In the Revolutionary War such men as Thomas Sumter, Francis Marion, and George Rogers Clark, employing guerrilla tactics learned from the Indians, contributed greatly to the defeat of the English. It is also interesting to note that the "minutemen" incident at Lexington is the first instance in which national resistance by Americans evidenced itself as outright warfare of a guerrilla type.

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Guerrillas in Midwest

Immediately prior to and during the Civil War, raids and ambushes in the best guerrilla traditions occurred in what is now the Middle West. When the actual war broke out, and as it progressed, both the North and the South commissioned personnel to enlist volunteers and conduct guerrilla warfare. In Kansas and Missouri, where this type of warfare was employed most extensively, several names still are famous or infamous, as the case may be. Quantrill and his "Raiders" were a constant thorn in the side of federal forces in the area. Operating from Kansas for the Union side, Jim Lane and his "Redlegs" or "Kansas Jayhawkers" repeatedly crossed into Missouri to raid the farms and homes of southern sympathizers. The reciprocating process generated by these two forces made for excesses that left animosities to smolder long after the Civil War had ended. Kansans, particularly, were a long time forgetting the burning of the town of Lawrence by Quantrill.

Also during the Civil War, in the eastern, central, and southern states, men like Nathan Bedford Forrest, John H. Morgan, and John S. Mosby effectively combined cavalry tactics with guerrilla tactics in their fight for the Confederacy.

Finally, during World War II in the Philippines, many Americans, military and civilian alike, escaped capture by the Japanese and fled to the jungle-covered hills. Once there they joined or organized guerrilla units operating against the Japanese in what proved to be an extremely efficient guerrilla movement.

Tradition of Resistance

It is obvious, then, that we, as a people, do have a tradition of resistance to invasion or to what we consider tyranny of any kind. The next question which logically presents itself is: Are the Americans who might be expected to take part in a

guerrilla movement against the Soviets, in case of invasion, the same type as those who participated in the historical examples cited above?

The people who fought in guerrilla warfare in pre-Revolutionary and Revolutionary times were frontiersmen. They were at home in the woods, were expert marksmen for the most part, and were inured to the hardships that go with living off the land. Again, those during the Civil War were expert marksmen, were excellent horsemen, and still had not been softened by the degenerative processes of modern living. Finally, those Americans who participated in guerrilla fighting in the Philippines were largely ex-soldiers or soldiers who had escaped the clutches of the Japanese. They were, therefore, trained in the use of firearms and demolitions and had some ideas of military organization and tactics.

It is apparent the participating personnel had in common devotion to a cause, and in every instance that cause was freedom from oppression. As for common personal characteristics, they possessed courage, initiative, and resourcefulness. A thorough examination of the motives probably would show that a large percentage were motivated by a desire for revenge. In conventional warfare the soldier is restricted and killing becomes an impersonal thing. There is little satisfaction to be gained by the man seeking revenge for personal possessions lost or a loved one killed. On the other hand, the field of guerrilla warfare presents the opportunity to follow the philosophy of "an eye for an eye and a tooth for a tooth."

Would We Resist Today?

What about our people today? Certainly they are not rugged frontiersmen, and a large majority of them are people who have lived only in cities or towns, an existence which may or may not be considered to involve hardships. The use of firearms and marksmanship are foreign to the majority of our people and at times a large number feel a real antipathy toward anything military. This being the case, would they take part in a guerrilla movement?

Let us assume that if the Soviets occupied a section of this country, there might be more or less passive acceptance by those people left in the occupied areas, at least for a time. If previous Soviet occupation of territory is an example of how the occupation would go, many Americans soon would be ready to resort to any means to rid themselves of the inevitable restrictions, brutality, and oppressive measures. The average American simply could not tolerate the idea of being a forced laborer subject to deportation, working 60 to 80 hours each week, and living under constant surveillance by secret police. He would chafe under the incessant barrage of propaganda. He would be brought to such a state that only violent reaction would answer his need for expression against those of our people who would assume authority and would turn quisling or traitor.

"Who are these Americans who would remain in occupied areas?" Americans are highly mobile, compared to the refugees of Europe during World War II. Larger numbers would move to rear areas before the advance of an invader. At the same time, certain conditions limiting the evacuation of areas must be considered. Among these factors would be the closing of roads to civilian traffic, the commandeering of civilian transportation, the inability of some to move invalid members of their families and their consequent reluctance to leave, and, finally, the belief of some that Soviet occupation could not be as bad as it is painted.

Among those who remained to live in occupied areas there should be many who could and would participate in resistance activity. Men in their 40's and 50's with

previous military experience in Regular, Reserve, or National Guard components, possibly members of Civil Defense organizations, should be able to provide leadership for resistance forces. Other sources of personnel would exist in the teen-age members of organizations which emphasize training in woodsmanship and scout craft. Then, too, in an all-out war, such as this theoretical war necessarily would be, women of all ages could be counted on to fight beside the men. Resisters might be broken down into the categories of true patriots who follow their patriot leaders out of personal loyalties, and lawless elements eager to take advantage of the situation. Regardless of how they were categorized, however, it is reasonably safe to assume that these resistance groups or guerrilla forces would exist.

Areas of Operation

Where would these bands or groups operate? The answer is "everywhere." However, certain portions of the country are more admirably suited to guerrilla activity. Some of the favorable areas are the Rocky Mountains, the Florida Everglades, the mountains in Tennessee, Kentucky, and West Virginia, the lake regions in Minnesota, the bayou country in Louisiana, and the Northwest. However, covert resistance groups might operate in the towns and cities much as the Danes operated against the Germans in World War II.

At this point, some might say: "This is all very well. I agree that we, as a people, have fought as guerrillas before. I agree that an invasion of this country by the Soviets or some other power may become a reality. I also agree that some of our people will live in the occupied areas and would take part in a resistance movement. I agree with all this, so what!?"

Preparations Needed

This is what! We should plan now to utilize Americans in resistance movements should the United States be invaded and portions of it occupied. We should follow the example set by the Soviets prior to World War II when they prepared for guerrilla activities in enemy rear areas in case of invasion. These preparations included the selection of leaders and the caching of supplies (food, ammunition, arms, and explosives) to support the initial stages of guerrilla operations.

Such preparations are not beyond our capabilities. The tentative basis for organization of guerrilla forces might well be established within our present Civil Defense organizations. Active effort should be made to interest more of our people in scouting activities, shooting, hunting, hiking, and mountain climbing clubs.

More important still is the need for increased emphasis on the teaching of patriotism in homes and schools. The mental and physical preparation of any people for guerrilla activities against an occupying nation is not something that can be accomplished overnight. It is not possible to line up people, pass out an initial issue of patriotism and physical conditioning, and expect them immediately to embark on a type of fighting in which there is no quarter asked or given. This type of activity requires a great deal of advance planning and thorough preparation.

It is certain that if the shoe is on the other foot and US forces ever cross the Soviet border, guerrilla activity will pose one of the biggest problems facing our commanders. Can we afford to be any less thorough in our preparations?

The Principles of War and Psywar

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The principles of war are fundamental truths governing the prosecution of war. **(Field Manual 100-5, *Field Service Regulations, Operations*)**

AT TIMES, in considering psychological warfare, there is a tendency to regard it as a separate entity, outside the scope of normal rules concerning military operations. Dr. Wilbur Schramm has commented on this "folklore" approach in his study of "The Soviet Concept of 'Psychological' Warfare."

One of the best ways to dispel this concept that "our psychological warriors are a rather special group of individuals, probably not psychologists and certainly not warriors, who are permitted to throw words at the enemy while our real warriors are at lunch" will be to see how the "principles of war" apply to psychological warfare.

Such an examination will reveal not only that the principles are vital to the successful accomplishment of psychological operations, but also that psychological operations contribute to the commander's compliance with the principles. It follows, then, that to be effective, psychological warfare must adhere to the principles of war and that it cannot be effective if the principles of war are violated in actions which it attempts to support.

In citing examples of past operations as instances of the application of the principles of war, the same difficulty is faced in psychological warfare as in any other military operation. A successful operation utilizes all or most of the principles and a thorough analysis of the operation is necessary to indicate the principles. An unsuccessful operation, on the other hand, usually fails because one or more of the principles are violated, and in many instances the principle or principles violated are readily apparent.

Thus when examples of successful operations are cited under any separate heading it should be understood that other principles were being observed and that the example is mainly one which demonstrates readily the principle being discussed. Conversely, while failure of an operation may be attributed to the violation of one of the principles, it is quite possible that other principles also were being violated, making their contribution to the failure of the operation.

OBJECTIVE

Every military operation must be directed toward a decisive, obtainable objective.

The destruction of the enemy's armed forces and his will to fight is the ultimate military objective of war. Psychological warfare concerns itself with the phrase, "his will to fight." Destruction of the enemy's will to fight is the sphere of psychological warfare. Thus the psywar objective must be identical to that of the

Psychological warfare must adhere to the principles of war in its own activities and cannot be effective if the principles are violated either in psywar operations or by commanders for whom it is a support weapon

commander, since, as Field Manual 33-5, *Psychological Warfare Operations*, states, "the over-all objective of psychological warfare is to support the accomplishment of national policy and aims, *or a military mission*" (author's italics).

The discussion of psywar in this article will be limited to operations in support of the accomplishment of a military mission. FM 33-5 points out that psychological warfare activity, carefully integrated with combat operations (see Figure 1), contributes to the achievement of this ultimate objective "by using psychological warfare operations to reduce the combat efficiency of the enemy" and "to produce cumulative effects upon the opinions, emotions, attitudes, and behavior of the target audiences that will assist in the defeat of the enemy."

Efforts at reducing enemy combat efficiency are usually stated as "tasks" for psychological warfare. These tasks need not be carried out against the enemy at a point coinciding with the main effort of the commander in order to accomplish the psywar objective or to assist the commander in attaining his objective. Stated another way, the principle of the objective is not to be confused with the physical objective.

Adherence to the principle of the objective will prevent the propagandist from falling into the error of arguing with the enemy propagandist or engaging in pyrotechnic propaganda which, while interesting to conduct, has little or no effect on the target.

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A classic example of failure to hold to the objective was the German offensive of 1942 against Russia. After early successes in their efforts to reach Moscow and envelop a large part of the Red Army, the Germans split their forces to try for a second objective—the rich oilfields of the Caucasus.

For the German propagandist, this violation of the principle of the objective brought the distasteful task of attempting to explain to the German people how early success in both operations could turn to defeat. As a further sidelight to this operation, Allied propaganda analysts were able to predict the withdrawal of the German forces from the Kuban bridgehead as a result of the change in German propaganda treatment of the campaign.

The close relationship between the commander's objective and the psychological warfare objective is illustrated by the European campaign. The directive to General Eisenhower stated:

You will enter the Continent of Europe, and, in conjunction with the other United Nations, undertake operations aimed at the heart of Germany and the destruction of her armed forces.

To support General Eisenhower, SHAEF Psychological Warfare Division established a two-phase program: Phase A—the phase before and after D-day up to a change in German morale; Phase B—the phase after the change in German morale. The psychological warfare objective was set forth in a "Standing Directive for Psychological Warfare Against Members of the German Armed Forces, June 1944."

The directive stated the objective of psychological warfare generally as follows:

It is the task of psychological warfare to assist the Supreme Commander in fulfilling his mission against the enemy with the most economical use of troops and equipment.

In support of this objective, two "long-

term" tasks were enunciated along with six pre-D-day and two post D-day "short-term" tasks.

The two "long-term" tasks were:

1. Maintenance and increase of belief in the reliability of the Anglo-American word and in unity between the Russians and ourselves.

2. Creation of an atmosphere in which the German soldier gradually would come to feel that, since defeat was certain, he had fulfilled his soldierly duty and could now follow the example of the German Army in Tunisia.

OFFENSIVE

Only offensive action achieves decisive results.

For psychological warfare purposes this statement can be paraphrased to read: *Only positive psychological operations achieve decisive results.*

It is axiomatic that high morale and an aggressive spirit are the attributes of an

Figure 1.—*German Soldiers on the Western Front*: We, the Allied heavy bombers, do not cause you any immediate harm. We leave that to the strafing machineguns of our fighters. We fly into Germany 30,000 feet above your head. Your foxholes are not our targets. We aim for the factories which produce your ammunition, the railroads which carry your supplies, and the bridges which connect you with your home.

On 29 October our bombs fell on the bridge at Juelich. From 28 to 31 October we dropped 9,000 tons of explosive and incendiary bombs in nine mass attacks on Cologne. We bomb systematically strategic military areas 30 to 60 miles in your rear. We force you to fight with your back against a paralyzed Rhineland.

Think of the destruction, every time we four-engined bombers come over. And we will be back soon.

You'll be hearing from us.

army on the offensive, and that low morale and a defeatist attitude results when on the defensive. Thus either offensive action or, in some instances, the threat of offensive action in the near future are the situations in which psywar can be most effective.

In a stable, inactive situation, psychological warfare cannot cause the enemy to defect unless there are several other factors already at work. Among these would be the previous defeat of the enemy, a "clobbering" so extensive that the enemy, now that he has a chance to hear our message, will heed. Second, there is the threat of offensive action on our part which can be used by psychological warfare to cause defection, lower morale, and soften up the target prior to action.

Since the offensive is action by a commander to secure or maintain the initiative, to preserve his freedom of action, and *to impose his will on the enemy*, psychological warfare plays a leading role in support of this principle.

Psychological warfare, however, cannot wait until an offensive is underway before going into operation. Psywar should be used during the preparatory phase of an operation to soften up the enemy mind; to make it easier for the commander to impose his will on the enemy.

Applying the principle of the offensive to psychological warfare, it is mandatory that the messages addressed to the target audience be positive in nature. Counterpropaganda and defensive messages are not evidences of a campaign which aims at changing attitudes and imposing one's will on the target. They are, at best, answers to the opposing propagandist's efforts to impose his will on the same target. Such propaganda violates the principle of the objective in that it gives the initiative over to the enemy propagandist; allows him to select the objectives and the subjects to be argued. There are times, of course, when counterpropaganda can be useful; when it takes the form of counter-punching in boxing; when it takes advantage of an enemy move and exploits an opening made by that move. But such counterpropaganda must be capable of two things: it must be in line with the existing policies and it must have the target audience, not the enemy propagandist as the *real* target. You cannot cause a concussion on the target audience by beating the enemy propagandist over the head with a leaflet.

Use Positive Approach

By the same token, you cannot persuade an enemy target audience to act or think as you want them to if your propaganda is on the defensive. While the task of the propagandist is easier when the military force he represents is on the offensive, the propagandist, even in a retrograde or defensive situation, must use a positive approach to his audience.

The danger in the defensive or retrograde situation, however, is not that the propagandist will go on the defensive, but that his efforts to take a positive approach will be thwarted by those who assume that any indication of a reverse is a sign of weakness. The good psywarrior will take advantage of this situation to build credibility in the target audience by admitting the reverses which are taking place.

The British Broadcasting Company during World War II is the outstanding example of taking advantage of reversals to gain the confidence of an audience by admitting setbacks. By using what is termed "mirror" propaganda, presenting both sides of the picture, the BBC became a source of information even to members of the German General Staff. Ultimately, the BBC was able to utilize this credibility to mislead German leaders as to the location of the invasion landing sites.

SIMPLICITY

Simplicity must be the keynote of military operations.

In psywar, simplicity can best be

achieved by adhering to the simple messages directed at specific groups with a definite purpose. Complex and complicated, "gimmicked" campaigns may be impressive to superiors and even make the propagandist feel that he is putting on a "spectacular" for the benefit of his target, but unless the message to the target is simple and understandable, it fails to do the job. (Figure 2.)

Figure 2.—An excellent example of the positive approach type message which is simple, understandable, and directed at specific groups with a definite purpose.

Simplicity also can be obtained through organization, by having sufficient control over the operational units to ensure that all follow the same policy line, all have the same objective, and yet all are allowed sufficient leeway to accomplish their assigned mission.

UNITY OF COMMAND

The decisive application of full combat power requires unity of command.

For psychological warfare, unity of command is essential since the progress of mass communication media and speed of transmission make both coverage and timing essential to any propaganda effort. Further, unity of command will ensure that the efforts of *all* information and propaganda communicators are coordinated. This is not to say that the Public Information Officer or the Troop Information Officer need to participate actively in the psychological warfare campaign against the target, or to propagandize their public or troop audience. However, *coordination will prevent contradictions from appearing in presentation of the material to any audience.* The Field Press Censor, too, can assist in the presentation of a timely message by psywar if proper coordination, obtainable by unity of command, is instituted.

On the tactical level, unity of command and recognition that psywar operations are a command function—a support weapon to be made a part of the weapons system—will prevent the recurrence of past instances where our troops were not informed of surrender instructions which were given to enemy troops by leaflets or loudspeakers with the result that enemy soldiers were shot trying to surrender.[1]

MASS

Maximum available combat power must be applied at the point of decision.

Reports of propaganda operations in previous actions too often stressed the number of leaflets printed and disseminated, the hours of radio time utilized, and the number of loudspeaker broadcasts beamed at enemy frontline troops.

This concept of "mass" might better be spelled w-a-s-t-e.

Mass is not dependent upon numbers alone, but considers the critical time and place for the concentration of means. For psychological warfare this has special

[1] The euphemism usually used in psywar is "cease resistance," a term which has proved more palatable to enemy soldiers than "surrender."

meaning. One right message to the right target at the right time will be more effective than one million messages, hundreds of "themes" strewn about the enemy landscape, and radio wavelengths.

It may be defended as an American trait to be concerned with "doing things in a big way," using "blanket coverage" as an index of effectiveness of operations, but no enemy ever has been smothered effectively under a blanket of leaflets.

One splendid example of the application of the principle of mass in World War II Office of War Information operations is recounted by Dr. Paul M. A. Linebarger in *Psychological Warfare*, the "bible" in this field.

The Japanese offered to surrender, but with conditions. We responded, rejecting the conditions. The Japanese Government pondered its reply, but while it pondered, B-29's *carried leaflets to all parts of Japan, giving the text of the Japanese official offer to surrender. This act alone would have made it almost impossibly difficult for the Japanese Government to whip its people back into frenzy for suicidal prolongation of war. The Japanese texts were checked between Washington and Hawaii by radiophotograph and cryptotelephone; the plates were put into the presses at Saipan; the big planes took off, leaflets properly loaded in the right kind of leaflet bombs. It took Americans three and a half years to reach that point, but we reached it. Nowhere else in history can there be found an instance of so many people being given so decisive a message, all at the same time, at the very dead point between war and peace.*[2]

Psychological warfare also may assist the commander in achieving mass by training its operations on a secondary effort, thereby freeing troops for employment at a more critical point.

[2] This example also highlights the principle of maneuver and can serve as a classic illustration of the application of the principles of war in one operation.

ECONOMY OF FORCE

Minimum essential means must be employed at points other than that of decision.

One of the means of achieving mass in the critical area is to use deception. While most psychological warfare personnel (including the author) will quarrel with the utilization of psywar as a deceptive measure, there are ways in which psywar can help the commander to deceive the enemy.

Through the use of covert or black propaganda, deception can be practiced against the target audience without compromising the credibility of overt propaganda.

Again, a psychological operation in support of a secondary effort, rather than the main one, can throw the enemy propaganda analyst off track and deceive him as to the commander's "point of decision." Here the deception is practiced against the enemy's intelligence agency rather than against a target audience.

And finally, as the use of BBC prior to the European invasion indicates, a credible source can be used to deceive enemy commanders as to the impending operation. However, in the case of BBC, this was so brilliantly handled that the enemy actually misled himself by analysis of the BBC messages, and to have admitted that he had been misled would have lessened his prestige in the eyes of his troops.

Preserve Integrity

This type of grand-scale, one-time, all-out deception may be proper for psywar if conditions are right. However, every now and then a commander feels that loudspeaker teams should be used to lure the enemy from foxholes and bunkers so that artillery can inflict casualties. The use of psywar media and techniques for such purposes, while soul-satisfying at the moment of use, will destroy completely any possible future use of psywar. The next time that commander tries to get the enemy's attention or cooperation by psywar he

will find himself in the position of the boy who cried "wolf."

From the viewpoint of psychological warfare, economy of force will include proper use of personnel and equipment, and, as was mentioned under the principle of mass, possibly fewer messages aimed at the proper target audience.

Trained propagandists will be at a premium in the event of a war; interrogators trained in the needs of psychological warfare intelligence will be difficult to obtain. In fact, all the personnel needed for psychological warfare operations—radio technicians and announcers, printers, artists, and interrogators—will be in demand by other agencies and activities. Psywar will have to use what it can obtain. Economy of force will be a must.

MANEUVER

Maneuver must be used to alter the relative combat power of military forces.

Advances in the fields of transportation and communications have made it possible to maneuver large forces rapidly. Similarly, advances in the field of mass communications media have made it possible for psychological warfare to reach target audiences previously denied to any commander.

Media available to tactical psychological warfare operations are principally the loudspeaker and the leaflet, including the frontline newspaper. Radio may be used, depending on the availability of receivers. Further maneuverability is gained for leaflets, such as the newspaper and safe conduct passes, by means of dissemination, including artillery shells and aircraft. Loudspeaker broadcasts may be made either by an announcer personally, or may be tape recorded messages from a representative of the United States forces.

On the strategic level, for messages aimed at an audience in the rear of the enemy's frontline positions, including both military and civilian audiences, the principal media are radio and leaflets. Leaflets are disseminated by air or may be smuggled in by agents; radio broadcasts may be made by powerful fixed stations far removed from the combat zone or the theater itself, or may be broadcast by mobile radio transmitters operating in relatively forward areas.

Thus proper use of communication media and means gives psywar much of its maneuverability. But there is still another factor which adds maneuverability to propaganda operations. This is the ability to change propaganda themes when the situation warrants.

A propaganda campaign is not static. As intelligence indicates changes in the target for propaganda, the propagandist must adapt his messages to take advantage of the changes, for some of which he will have been responsible. He will maneuver his media and messages in such a manner as to alter the power of the target to resist and the enemy propagandist to refute.

Maneuverability in this respect may be the ability to act swiftly to counter an intercepted enemy radio broadcast to his own people who also may be our target audience.

Finally, the mobility and range of radio broadcasting facilities and loudspeaker teams, the accuracy and range of artillery firing leaflet shells, and the ability of aircraft to drop leaflet bombs in specific locations add to the maneuverability of psychological warfare.

SURPRISE

Surprise may decisively shift the balance of combat power in favor of the commander who achieves it.

Dr. Linebarger, in a talk to the graduating class at the Psychological Warfare School in June 1956, posed the question as to the reaction of an enemy if psychological warfare operations ceased completely—if, at a certain time, no more radio broadcasts were made, no more leaf-

lets were dropped, no more loudspeakers blared.

The result, he indicated, would be to take the enemy by surprise.

But since this plan seems to be one which would probably entail more effort than continuing normal operations, it might be wise to examine other ways in which psywar may assist the commander in achieving surprise.

Deception may be practiced against the enemy propaganda analyst. A psywar campaign, begun at a time when action is impending, may be continued in such a manner as to resist the efforts of the enemy propaganda analyst to determine what is planned. This eliminates the possibility that psywar operations will give away information of intelligence value to the enemy, not through *what is said*, but rather by the comparative *frequency of what is said*.

In short, a continuation of a propaganda campaign in an even, steady manner may be the best way in which psywar can contribute to surprise.

There may be times when, because of the themes which psywar has been using and the type of news reporting, someone will demand that such activities cease since they violate security. There are two answers to this, and the security-minded would be wise to remember them. First, the time to consider security is in the planning stage, and second, because intelligent analysis of a cessation of certain themes or certain types of reporting may indicate planned operations to the enemy and thus endanger security.

SECURITY

Security is essential to the application of the other principles of war.

As noted in commenting on the principle of surprise, security may be violated by canceling certain themes out of the effort, or by changing the emphasis on certain subjects. But more important than this, for psychological operations, is the need for the psywarrior not to be surprised by the plans of his own commander!

Psychological warfare staff officers must be informed of the plans for future operations if they are to have their efforts at psychological warfare amount to anything more than a shot in the dark. They must know policy, and they will probably get sufficient policy guidance, even if of a negative nature, to make them aware of the limits of their operations. But unless they are aware of what the commander plans to do, they cannot give effective assistance.

This, of course, also goes back to the principle of unity of command and the need for coordination.

"Geilenkirchen Encircled"

With the foregoing discussion in mind, a brief examination of a World War II operation may serve to illustrate the application of the principles of war to psywar. From this viewpoint, the operation at Geilenkirchen, coordinated by the Ninth Army Psychological Warfare Division, stands as a classic example of the application of the principles and also as an excellent example of the integration of a psychological warfare plan into the overall plan for an offensive action.[3]

Geilenkirchen was a strong point situated directly on the boundary between the United States Ninth Army and the British Second Army. The plan to take the town called for a combined Allied encirclement followed by a frontal attack. The United States 84th Division, less the 333d Regimental Combat Team, was to take Waurichen, Immendorf, Prummern, and Süggerath; while elements of the XXX British Corps were to take Hatterath, Tripsrath, Niederheide, and Bauchem, meeting the 84th Division east of Süggerath. When the link-up occurred, the 333d was to make the frontal assault.

The psychological warfare objective in

[3] Complete details of this incident will be found in "Baloney Barrage" by Major Edward A. Gaskey, *Infantry Journal*, December 1949.

the action was to induce the garrison of the town to surrender without a fight, an example of a simple, direct objective, albeit the most difficult one to attain.

The leaflet used (Figure 3) also was simple in design but put its point across by virtue of its simplicity. Acting on prior knowledge of the plan of attack, the propagandists depicted the situation as it would be at the moment of the Allied junction. The leaflet was prepared and ready for dissemination even before the encirclement began, a dangerous procedure because if any of the towns had not been captured, the leaflet could not have been used.

Perfect Timing Needed

Here, however, proper timing of the leaflet dissemination provided the shock value of surprise to the garrison. On a signal that the British and American forces had met at Süggerath, 30,000 copies of the leaflet were fired by artillery, using

Figure 3.—*Geilenkirchen encircled*: With the capture of Bauchem, Niederheide, Süggerath, Immendorf, and Prummern the Americans have bypassed the MLR. The assault on Geilenkirchen is on.

German soldiers in Geilenkirchen: You are encircled. All around American gun barrels are directed at you. You are living bull's-eyes.

Again and again German soldiers are being encircled on all fronts. Thousands of your comrades saved themselves unnecessary bloodshed in the pockets of Brest, Calais, St. Malo, and Aachen by giving themselves up.

In a war that is already lost you are fighting a losing battle. Your mission is fulfilled, your duty long since done. Whoever dies now in Geilenkirchen, dies in vain. *Only as prisoners of war can you escape annihilation.*

50 shells, into the town. This also was the signal for the attack by the 333d. One combat loudspeaker team from the Ninth Army Psychological Warfare Detachment accompanied the 333d in the attack and made a broadcast when about 1,000 yards from the town. They displaced forward and made another broadcast from the edge of town.

The operation resulted in the surrender of the entire garrison of Geilenkirchen to the 333d with only token resistance.

In the Geilenkirchen operation the principles of war as applied may be summarized briefly as follows:

1. *Objective:* A direct, concise objective—to induce surrender.

2. *Offensive:* A positive approach by the propagandists, taking advantage of the offensive nature of the action being supported.

3. *Simplicity:* Pictorial presentation of the situation in the leaflet and use of loudspeakers with the frontal assault.

4. *Unity of Command:* The entire effort was coordinated by Ninth Army PWD.

5. *Mass:* All propaganda facilities were brought to bear against the garrison in the town.

6. *Economy of Force:* Thirty thousand leaflets, using 50 artillery shells, and one loudspeaker team, sufficient force for the task.

7. *Maneuver:* The change to the specific "encirclement" theme from other general themes which had been used against all elements of the German Army in the area.

8. *Surprise:* Timing of the delivery of the leaflets with the link-up at Süggerath, informing the enemy of an event just as it was taking place.

9. *Security:* Tied in with surprise, no prior propaganda dealing with the specific operation to alert the enemy of the planned attack.

This brief study of the principles of war and their application in the field of psychological warfare is by no means a complete consideration of the problem. Those who have had experience in psychological warfare, as they read, can call to mind numerous occasions on which the principles were violated or applied successfully.

The measure of psychological warfare's contribution to the commander will depend to a great extent on the observance of the principles of war.

Two main points are these:

1. *Psychological warfare must adhere to the principles of war in its own activities.*

2. *Psywar cannot be effective if the principles are violated either in psywar operations or by the commander for whom it is a support weapon.*

Far from restricting the military propagandist, application of the principles of war will enhance the efforts to destroy the enemy's will to fight. Use of the principles will do much to move psychological warfare from the "folklore" realm of "paper peddling" toward recognition as an effective support activity for military operations.

(The foregoing is not necessarily an expression of the Department of the Army or Special Warfare School policies.—Author.)

The Fifth Staff Officer

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THE threat of atomic warfare which will force the acceptance of broader fronts and deeper zones of action for tactical units magnifies the "futurewar" commander's problems concerning the civilian population and its economy. In "futurewar" the United States Army must not be caught drowsing as it was in the early stages of World War II when the magnitude of the problems concerning the civilian and his economy had been only partially visualized and poorly prepared for. The Army lagged especially far behind in providing a proper organization for its Civil Affairs and Military Government (CAMG) effort. As combat units undergo reorganization today and tactical doctrine is brought into balance, it is notable that the general staff has been expanded to provide a CAMG officer on the general staff level.

The G5's CAMG responsibilities and functions, only briefly treated in the 1954 edition of Field Manual 101-5, *Staff Officers' Field Manual, Staff Organization and Procedure,* deserve explanation and amplification for those vitally or even remotely concerned with either the general staff or the CAMG functions as such.

In 1903 Congress passed legislation authorizing establishment of the Army General Staff. The general staff has varied in composition from as low as two to as many as five staff sections, and the functions assigned to these sections have changed frequently.

The general staff went into World War I with four members. However, because the training of newly assigned troops was a major task distinct from the problems of the other general staff sections, a G5 section was created in the American Expeditionary Force to perform the training function.

Millions to Care for

After World War I the general staff reverted to prewar form and it was not until World War II that the press of circumstances again forced a change. Troop training was well in hand this time but it soon became apparent that adequate provisions had not been made for handling civilian populations and their economies.

Cold hard facts confronted diplomats and soldiers alike. Armies conquered land; with land came people, cultures, political institutions. More alarming, particularly to the combat commander, was the threat of disease, starvation, and unrest behind the frontline soldier. As the war progressed United States forces ultimately established control over 80,000,000 polyglot peoples of France, Luxembourg, Belgium, parts of the Netherlands, Czechoslovakia, Austria, and Germany. Some 4,200,000 refugees actually were processed. The civilian population, its control, and its needs had a strong impact upon tactical operations.

Other less obvious pressures contributed to the elevation of the CAMG staff function. First, the existing general staff sections found themselves completely occupied with vital activities in their respective fields of endeavor. In many cases CAMG was at loose ends—at one time under the G1, the G3, or even the responsibility of

The impact of "futurewar" with its broader fronts and deeper zones of action for tactical units will greatly magnify the commander's problems concerning the civilian population, its control, and its economy

no one at the general staff level. Few general staff officers were trained to realize the functions of CAMG and their importance to war and postwar operations. This is not intended as criticism, since training had long focused attention on the immediate task of defeating the enemy.

Born of necessity, policies and directives for the organization and control of the civilian population and economies came streaming into field headquarters. Considering the magnitude of the control problem on the operational side and the requirement for special knowledge, it was evident the CAMG function which was to see the job done deserved greater command emphasis.

Recognition Came Late

SHAEF (Supreme Headquarters, Allied Expeditionary Force) deserves credit for early recognition of the requirement. The response elsewhere was not timely, however. It was not until 3 May 1944 that orders authorized general staff status for CAMG staffs in Europe and that the offices of the Assistant Chief of Staff, G5, were established in the headquarters of armies and corps. The determination as to whether there would be a G5 section at division level was left to the discretion of the field army commander. If such a section was established at general staff level in a division headquarters, at least one general staff corps vacancy had to be made available from the existing allocation of officers.

The problem of organization, procurement, and integration of these sections, however, proved to be uniformly difficult. In many cases armies and corps were operational before the G5 section could be manned. For example, the Ninth US Army was fully operational before its G5 staff was fully organized. In III Corps the section was organized only 20 days before the corps was in action. In the interim, few knew how to handle the intricate problems relating to the civilian population and economy.

Contrary to the situation in Europe, halfway around the world where other US forces were engaged there appeared to be no centralized and recognized effort to create a G5.

Not until operations approached Japan did the US Army come into densely populated, economically developed areas. It was then that a similar structure to that in the European theater ultimately evolved.

Brought Back by Conflict

Soon after World War II the CAMG-G5 vanished! Civil affairs and military government as a staff section receded to the halls of the Pentagon. Many of its activities were absorbed by other agencies and there is no further record of a CAMG staff section in operation in the field until the Korean conflict. Here, again, necessity fostered the creation of a J5 at the theater staff level and G5 at the theater army staff level. These offices remain to this day.

So much for historical development. But what about the G5 now? History and wisdom cannot be divorced, except in the land where fools reign. Fundamentally, there is tacit acknowledgment that G5 training and doctrinal development should not wait for another war. History and the predictable needs for CAMG in "futurewar" are

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enough to argue that this section should be in being now, with workable G5 doctrine, forward looking and ready to meet the anticipated vastly increased needs of an army engaged in a future conflict.

The fact that our war and postwar political objectives are in harmony and are properly implemented to secure the peace is, indirectly, recognition of the importance of the CAMG function in successful combat and postcombat operations.

What Is His Job?

Just how will the G5 function in a future war? The answer is easy: like any other general staff section chief. He will be a planner, a coordinator, an advisor to the commander, and a supervisor, using proved staff techniques. His CAMG activities remain unchanged, but now receive the benefit of better planning and increased coordination at the general staff level.

The G5 becomes the commander's major advisor concerning civilian population, economies, and institutions. He assists the chief of staff in planning and conducting activities pertaining to the civil population, its government, and the economy of areas in which forces are employed. He keeps a watchful eye on the conduct of CAMG operations throughout the commander's geographic area of responsibility.

Frequently, he will be jeeping around the country to see for himself. He will make a swing to civilian food storage dumps to check on stocks, accounting, storage practices, and necessary conservation measures to be certain that adequate preventive measures are being taken to preclude theft, deterioration, or destruction. All this is a *must* if he is to conserve civilian resources so the civilian economy will not become an undue drain on military resources. A ton of grain procured from the United States to prevent civilian starvation in the absence of local supplies is a ton of ammunition less for the troops. It is smarter to conserve civilian supplies and use them efficiently. Frequently he will stop at the mayor's office in cities and villages to get a "grass roots" report on conditions. This is one of the ways in which he determines how well programs are progressing.

Utilize Local Resources

Local economy resources necessarily will require exploitation, use, or conservation depending on either national policy or operational necessity or a combination of these factors. The G5 will have to know what to do with these resources. He will see to it that coal mining is resumed so that coal is not hauled from some distant area to heat soldiers' winter billets, or to start the local blast furnace producing steel for military needs, or to heat the local baker's ovens.

To assist him the G5 will have specialists assigned to his own staff. Especially where joint operations are either anticipated or in effect, his staff may include members of the Air Force and Navy. In the area of staff techniques, present thinking is that the G5 undoubtedly will prepare and keep current detailed plans, policies, and procedures for CAMG activities in areas to be occupied. He will coordinate such plans, policies, and procedures with the other general and special staff sections. He will advise and assist the commander and his staff in all matters of organization, supervision, and control of civil affairs and military government in the area occupied, or to be occupied, and he will interpret, from a CAMG viewpoint, the character of the people, the nature of the government, and the specific problems likely to be encountered. All matters of CAMG interest will be evaluated and appropriate information disseminated to other interested agencies or used for planning for future CAMG operations.

As for his relationship with higher authority, he will be responsible for interpreting and applying policies and direc-

tives as they affect his commands' CAMG operations. He also will formulate policies required to support the operations of his command. There will be situations in which problems peculiar to an area in which a command is operating will arise. Broad and far-reaching policies will be needed and the G5 will be expected to provide solutions which have been coordinated with the other members of the general staff.

How Does G5 Operate?

Perhaps it would help to consider the relationship of the G5 with other members of the staff: The G5 offers G1 recommendations pertaining to the relationship of troops to the civilian population in such matters as passes, off-limits areas, rest areas, food purchasing, and the general conduct of troops. In addition, he may assist by caring for allied prisoners of war of doubtful status in allied territory. G1, on the other hand, furnishes G5 information about allied civilians in the area, especially those desiring repatriation.

G5 augments G2 intelligence by obtaining answers to questionnaires concerning public officials and employees. He cooperates with G2 in providing security by assisting in obtaining loyal civilian police and guards, and by promulgating and enforcing civil security controls, such as limitation on civilian movements and political activity. He works closely with intelligence teams in obtaining technical as well as political data and makes available for interrogation all persons known to have valuable information of use to the United States Army.

The G3 provides the G5 information on the tactical situation, changes of boundaries and jurisdiction, attachment or transfer of units, and plans for future operations. G5, in turn, supplies information to G3 regarding deployment and movement of CAMG units and prepares G5 annexes to letters of instruction and other plans or orders. G5 also coordinates on civil defense and furnishes after action reports.

The G4 advises G5 of tonnage allocations for G5 supplies. All G5 requirements for captured enemy military stocks for use by civilians are processed through G4 for coordination with plans for collection, disposition, and utilization of such captured supplies and equipment. G4 receives from G5 that material which G5 desires to be published in administrative orders. G5 coordinates with G4 the use of rail, water, air, and road transport to meet civilian requirements, and further coordinates with G4 when items are critical and must be controlled.

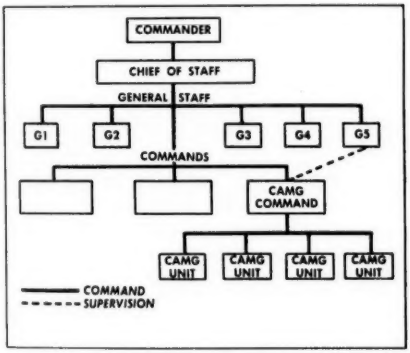
A similar relationship exists with the special staff section chiefs. It is not possible to cover them all but a discussion of one, the engineer, should prove helpful. The engineer provides maps and technical data of importance to G5, including technical advice on the condition and repair requirements of utilities when military expediency dictates. He also provides plans and assistance for emergency restoration of vital utilities, provides for the removal of land mines and booby traps interfering seriously with control of civilians, and cooperates on problems involving bridge and road repairs affecting the civilian economy. G5 assists the engineer by making local resources and labor available on short notice.

How does the G5 work with the CAMG units in his division or corps area? The relationship between the G5 and these units depends on the command status of the units operating in the area. One of the two accepted types of command will be in effect: the Operational Chain of Command or the CAMG Chain of Command.

When the Operational Chain of Command is in effect division CAMG platoons are attached to divisions, a company to corps, and larger CAMG units to correspondingly larger combat or logistical commands. Generally, in the combat zone the division, corps, and the army commanders

exercise command over all these units in their respective areas and, at the same time, have full responsibility for CAMG functions. In the pursuit of the tactical objective commanders will completely control the civilian population and economy through these operational CAMG units.

Up to this point the relationships sound familiar and, in fact, do not depart from those existing before the creation of the CAMG-G5, when the CAMG staff section and its units received supervision from one of the four general staff members. However, there is a major difference: The G5 has the same relationships with CAMG units that the G3 has to tactical units;



that is, the G5 has primary staff interest in CAMG unit operations, supervising such operations through the appropriate CAMG unit commander or commanders.

When the tactical commander is relieved of CAMG area responsibility, the CAMG Chain of Command type operation will be in effect. CAMG units in the commander's area fall under the direct control of the next higher CAMG staff and the relationship between the division G5 and the CAMG units is that of liaison and coordination. The G5 keeps abreast of CAMG activities in order that he may inform his commander of conditions in the area as they may affect the troops or command as a whole, and, in turn, he also advises the CAMG units of the commander's plans and requirements. Requirements in this case might be billets or other facilities in the CAMG unit's area of responsibility. The CAMG Chain of Command type of control is efficient in a moving situation when the tactical unit is liable to move but the CAMG unit must remain to continue its operations in the area. Regardless of the type of command in effect, fundamentally the closest of relationships should exist between the G5 and CAMG units. Both the G5 and the unit are there to assist the commander with the civilian population, government, and economy.

A "Ready to Go" Force

At present, the G5 is scheduled for all commands in the Army down to and including divisions.

Some current developments designed to back up the new G5 include the establishment of the CAMG School at Fort Gordon, Georgia, the development of doctrine and manuals, the establishment of CAMG Departments in the US Army Reserve schools, the establishment of the CAMG Branch in the USAR, the CAMG career specialization program for officers on active duty, the participation of CAMG staff sections and units in army maneuvers and exercises, the provision for CAMG operations as an integral part of plans from the Joint Chiefs of Staff to division level, organization of CAMG Reserve units to meet foreseeable contingencies, provision of augmentation table staff sections for field army and below, and, what is very important, the teaching of this doctrine in both Associate and Regular courses at the U. S. Army Command and General Staff College.

Present CAMG activities will give the US Army a corps of experienced officers and a file of appropriate doctrinal material. More important, they will give the field commander a trained "ready to go" force to assist him in carrying out his civil-military responsibilities.

How Hitler Broke Through In the West

Captain B. H. Liddell Hart, *British Army, Retired*

THE COURSE of the world in our time was changed, with far-reaching effects on the future of all peoples, when Hitler's forces broke through the defense of the West in May 1940. This world-shaking drama opened on 10 May and the decisive act began on the 13th when Guderian's Panzer corps crossed the Meuse at Sedan.

The narrow breach was soon expanded into a vast gap. The German tanks pouring through it reached the Channel coast within a week, thus cutting off the Allied armies in Belgium. That disaster led to the fall of France and the isolation of Great Britain. Although Britain managed to hold out behind her sea-ditch, rescue only came after a prolonged war had become a worldwide struggle. In the end Hitler was overthrown by the weight of America and Russia, but Europe was left exhausted and under the shadow of Communist domination. The price of that mid-May breakdown 17 years ago has been tremendous, and it remains doubtful whether the consequences can ever be redeemed.

After the catastrophe the breakdown was commonly viewed as inevitable, and Hitler's attack as irresistible. But appearances were very different from reality —as has now become clear from postwar revelations.

One revelation is that the heads of the German Army had little faith in the prospects of the offensive—an offensive which they had unwillingly launched on Hitler's insistence.

Even more startling is the revelation that Hitler himself suffered a sudden loss of confidence at the crucial moment, and imposed a two-day halt on the advance just as his spearhead pierced the French defense and had an open path in front of it. That would have been fatal to Hitler's prospects of victory if the French chiefs had been capable of profiting from the breathing space.

But the strangest episode of all was that the man who led the spearhead—General Heinz Guderian—suffered momentary removal from command as a result of his superiors' anxiety to put a brake on his pace in exploiting the breakthrough he had made! Yet but for his "offense" in driving so fast, the German invasion probably would have failed—and the whole course of world events would have been different from what it has been.

Germans Actually Weaker

Far from having the overwhelming superiority with which they were credited, Hitler's armies actually were inferior in numbers to those opposing them. Although his tank drives proved decisive, he had fewer tanks and less powerful ones than his opponents possessed. Only in airpower had he a superiority.

Moreover, the issue was virtually decided by a small fraction of his forces before the bulk came into action. That decisive fraction comprised 10 armored divisions, one parachute division, and one air-transported division—besides the air

force—out of a total of some 130 divisions which Hitler had assembled.

The dazzling effect of what the new elements achieved has obscured not only their relatively small scale but the narrow margin by which success was gained.

The success of the Germans could have been prevented easily but for the opportunities presented to them by the Allied blunders—blunders that were largely due to the prevalence of out-of-date ideas. Even as it was, with such help from the purblind leaders on the other side, the success of the invasion turned on a lucky series of long-odds chances—and on the readiness of Guderian to make the most of those opportunities which came his way.

No one man wins a battle, but it is possible to see now that without Guderian Hitler's drive through the Ardennes 17 years ago might never have led to Dunkerque, to the defeat of France, and to the long, uphill struggle into which the Allies were forced for another five years. For it was Guderian's insistence and persistence, his campaign directed not only against the French but also against his own superior officers, and his disregard for orders and equivocal interpretation of them which drove the comparatively small German Panzer force through from the French border to the sea.

The Battle of France is one of history's most striking examples of the decisive effect of a new idea carried out by a dynamic executant. Guderian has related how, before the war, his imagination was fired by the idea of deep strategic penetration by independent armored forces—a long-range tank drive to cut the main arteries of the opposing army far behind its front. A tank enthusiast, he saw the potentialities of this idea (which I had been expounding since the 1920's in books on future warfare, and which the Royal Tank Corps had been the first to demonstrate in training practice). Most of the higher German generals were as dubious of the idea as the British and the French had been—regarding it as impracticable in war. But when war came Guderian seized the chance to carry it out despite the doubts of his superiors. The effect proved as decisive as other new ideas had been in earlier history—the use of the horse, the long spear, the phalanx, the flexible legion, the "oblique order," the horse-archer, the long bow, the musket, the gun, the organization of armies separately, and maneuverable divisions. Indeed, the deep armor thrust idea proved more immediately decisive.

The German invasion of the West opened with dramatic successes on the right flank, against keypoints in the defense of Holland and Belgium. These strokes focused the Allies' attention there in such a way as to distract attention for several days from the main thrust which was being delivered in the center, through the hilly and wooded country of the Ardennes, toward the heart of France (see page 55).

The capital of Holland (The Hague) and the hub of Holland's communications, at Rotterdam, were attacked in the early hours of 10 May by airborne forces simultaneously with the assault on its frontier defenses 100 miles to the east. The confusion and alarm created by this double blow, in front and rear, were in-

Hitler's invasion probably would have failed had not Guderian, capitalizing on only a slight military advantage, pulled the German Army along to produce one of the most sweeping victories in modern history

creased by the widespread menace of the Luftwaffe. Exploiting the disorder, German armored forces raced through a gap in the southern flank and joined up with the airborne forces at Rotterdam on the third day. They cut through to their objective under the nose of the Seventh French Army which was just arriving to the aid of the Dutch. On the fifth day the Dutch capitulated, although their main front was still unbroken. Their surrender was accelerated by the threat of close-quarter air attack on their crowded cities.

It has been surprising to find, since the war, how small the invading German forces were compared with what they appeared to be at the time. They were much smaller than the forces opposing them. Moreover, the decisive thrust was delivered by a mere one armored division—the only one that could be spared for the attack on the Dutch front. Its path of advance was intersected by canals and broad rivers that should have been easy to defend. Its chances of success depended on the effect of the airborne coup.

Small Parachute Force

But the new arm was also very small—and amazingly small compared with what it achieved. In May 1940 Germany had only 4,500 trained parachute troops. Of this meager total, 4,000 were used in the attack on Holland. They formed five battalions and were backed up by a light infantry division of 12,000 men carried in transport aircraft.

From General Kurt Student, the commander in chief of the airborne forces, I gathered details of the plan:

The limitations of our strength compelled us to concentrate on two objectives —the points which seemed the most essential to the success of the invasion. The main effort, under my own control, was directed against the bridges of Rotterdam, Dordrecht, and Moerdijk by which the main route from the south was carried across the mouths of the Rhine. Our task was to capture the bridges before the Dutch could blow them up, and keep them open until the arrival of our mobile ground forces. My force comprised four parachute battalions and one air-transported regiment (of three battalions). We achieved complete success, at a cost of only 180 casualties. We dared not fail, for if we did the whole invasion would have failed.

Student himself was one of the casualties. Wounded in the head by a sniper's bullet, he was out of action for eight months.

A secondary attack was made on the Dutch capital, The Hague. Its aim was to capture the heads of the government and the military services in their offices and to disrupt the entire machinery of control. The force employed at The Hague was one parachute battalion and two air-transported regiments under General Graf Sponeck. This attack was foiled, although it caused much confusion.

Little Time for Planning

Student said that he and Sponeck were suddenly called to Berlin on 2 May to see Hitler.

We were the first commanders to whom he gave in advance the date intended for

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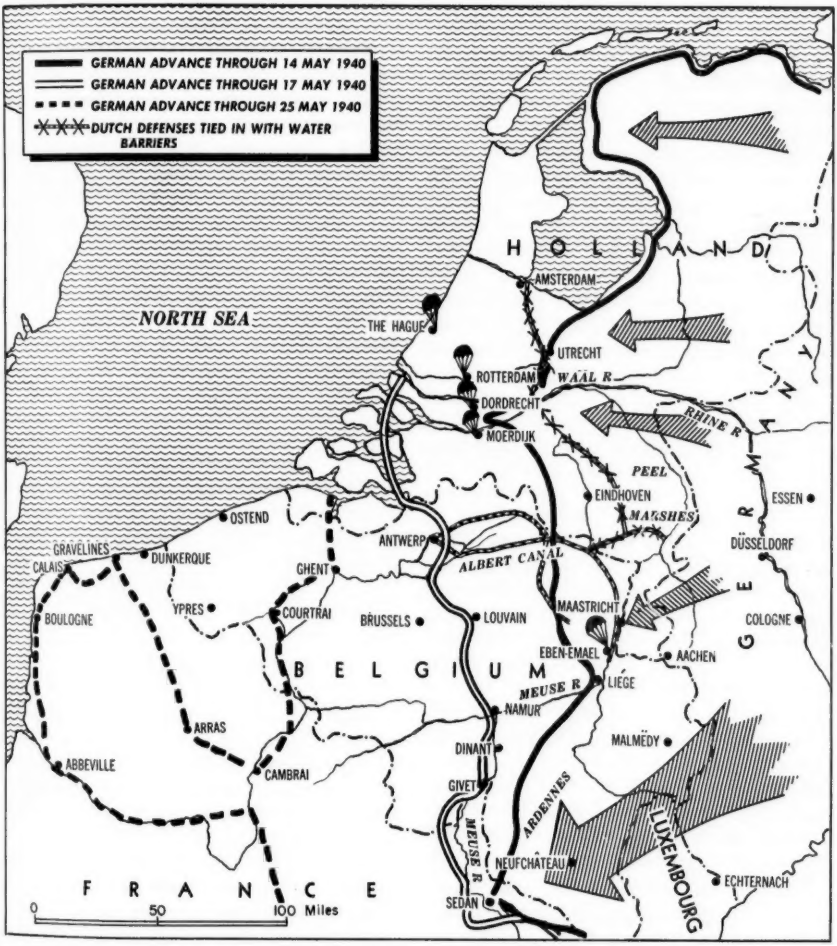
the start of the attack in the West—May 6th. Owing to the weather this date was changed to the 10th.

The airborne stroke was conceived by Hitler himself, although Student was quick to grasp its possibilities, and he worked out the plan.

In conclusion, Hitler said: 'I will be responsible for everything except that no harm is done to Queen Wilhelmina, who is so popular with her people, and the whole world!' To emphasize the importance of the order it was handed to us in writing.

The invasion of Belgium also had a sensational opening. Here, the ground at-



tack was carried out by the powerful Sixth Army under General Walther von Reichenau. This force had to overcome a formidable barrier before it could deploy effectively. Only 500 airborne troops were left to help this attack. They were used to capture the two bridges over the Albert Canal and the Fort of Eben Emael, Belgium's most modern fort, which flanked this waterline frontier.

That tiny detachment, however, made all the difference to the issue. For the approach to the Belgian frontier here lay across the southerly projection of Dutch territory known as the "Maastricht Appendix," and once the German Army crossed the Dutch frontier the Belgian frontier guards on the Albert Canal would have had ample warning to blow the bridges before any invading ground forces could cross that 15-mile strip. Airborne troops dropping silently out of the night sky offered a new way, and the only way, of securing the key bridges intact.

Ruse Was a Big Help

The very limited scale of airborne forces used in Belgium gives a fantastic air to the reports at the time that German parachutists were dropping at scores of places in numbers that cumulatively ran into thousands. Student provided the explanation. He said that to compensate for the scantiness of actual resources, and create as much confusion as possible, dummy parachutists were scattered widely over the country. This ruse certainly proved most effective, helped by the natural tendency of heated imaginations to multiply all figures.

Student went on to say:

The Albert Canal venture was also Hitler's own idea. It was perhaps the most original idea of this man of many brain waves. He sent for me and asked my opinion. After a day's consideration I affirmed the possibility of such an enterprise and was ordered to make the preparations. I used 500 men under Captain Koch. The commander of the Sixth Army, General von Reichenau and his chief of staff General Paulus, both capable generals, regarded the undertaking as an adventure in which they had no faith.

The surprise attack on Fort Eben Emael was carried out by a Lilliputian detachment of 78 parachute-engineers commanded by Lieutenant Witzig. Of these, only six men were killed. This small detachment made a completely unexpected landing on the roof of the fort, overcame the antiaircraft personnel there, and blew up the armored cupolas and casemates of all the guns with a new highly intensive explosive—previously kept secret. The surprise attack on Eben Emael was based on the use of this new weapon which was silently transported to the objective by another new weapon—a freight-carrying glider.

The fort was well designed to meet every menace except the possibility of enemy troops dropping on top of it. From the roof of the fort Witzig's handful of "sky-troopers" kept the garrison of 1,200 men in check until 24 hours later when the Germans' ground forces arrived on the scene.

The Hairbreadth Margin

The Belgian guards on the two key bridges likewise were taken by surprise. At one bridge they actually lit the fuse to blow up the bridge—but the crew of a glider got into the blockhouse, on the heels of the sentries, in the nick of time to extinguish it.

It is notable that on the entire front of the invasion the bridges were blown up everywhere by the defenders, according to plan, except where airborne attackers were used. That shows how small was the margin between success and failure on the German side—since the prospect of the invasion turned on the time factor.

By the second morning sufficient German

troops had arrived over the canal to burst through the shallow Belgian line of defense behind. Then two Panzer divisions drove over the undemolished bridges and spread over the plains beyond. Their onsweeping drive caused the Belgian forces to start a general retreat—just as the French and British were arriving to support them.

This breakthrough in Belgium was not the decisive stroke in the invasion of the West, but it had a vital effect on the issue. It not only drew the Allies' attention in the wrong direction, but absorbed the most mobile part of the Allied forces in the battle that developed there, so that these mobile divisions could not be pulled out and switched south to meet the greater menace that on 13 May suddenly loomed up on the French frontier—at its weakest part, beyond the western end of the incomplete Maginot Line.

Bold Stroke Unexpected

In the meantime, the mechanized spearheads of Field Marshal Karl von Rundstedt's Army Group had been driving through Luxembourg and Belgian Luxembourg toward France. After traversing that 70-mile stretch of the Ardennes and brushing aside weak opposition they crossed the French frontier and emerged on the banks of the Meuse—early on the fourth day of the offensive.

It had been a bold venture to send a mass of tanks and motor vehicles through such difficult country, long regarded by conventional strategists as "impassable" for a large-scale offensive, let alone for a tank operation. But that increased the chances of surprise, while the thick woods helped cloak the advance and conceal the strength of the blow. The plan had been suggested in the autumn by General Fritz von Manstein, then Rundstedt's chief of staff, but turned down by the general staff. It had been adopted by Hitler in February after the upset caused when an air staff officer who was carrying details of the original plan had lost his way in a snowstorm and landed by mistake in Belgium.

It was the French High Command, however, which contributed most to Hitler's success more than either Manstein or accident. The shattering effect of the Ardennes stroke owed much to the design of the French plan which fitted perfectly, from the Germans' point of view, into their own remodeled plan.

French Plan Aided Germans

What proved fatal to the French was not, as is commonly imagined, their defensive attitude or "Maginot Line complex," but the more offensive side of their plan. By pushing into Belgium with their left shoulder forward they played into the hands of their enemy, and wedged themselves in a trap—just as had happened with their near-fatal Plan XVII of 1914. It was more perilous this time because the opponent was more mobile, maneuvering at motor-pace instead of at foot-pace. The penalty, too, was greater because the left shoulder push—made by three French armies and the British—comprised the most modernly equipped and mobile part of the Allied forces as a whole.

With every step forward the Allied armies took in their rush into Belgium, their rear became more exposed to Rundstedt's flanking drive through the Ardennes. Worse still, the hinge of the Allied advance was guarded by a few low-grade French divisions composed of older men and scantily equipped in antitank and antiaircraft guns, the two vital needs. To leave the hinge so poorly covered was the crowning blunder of the French High Command, under Gamelin and Georges.

The German advance through the Ardennes was a tricky operation and an extraordinary feat of staff work. Before dawn of 10 May the greatest concentra-

tion of tanks yet seen in war was massed opposite the frontier of Luxembourg. The force, made up of three Panzer corps, was arrayed in three blocks, or layers, with armored divisions in the first two, and motorized infantry divisions in the third. The van was led by General Guderian, and the whole was commanded by General Paul von Kleist. "Like a great phalanx, the three blocks stood densely closed up one behind the other"—that was Blumentritt's description. Even so, this armored array was more than 100 miles deep from head to tail—which lay nearly 50 miles *east* of the Rhine.

To the right of Kleist's group lay a separate Panzer corps, under Hoth, which was to dash through the northern part of the Ardennes to the Meuse between Givet and Dinant.

Difficult Approach March

These armored phalanxes, however, formed only a fraction of the armed mass that was drawn up along the German frontier ready to plunge into the Ardennes. Some 50 divisions were closely packed on a narrow but very deep front. Telling me the story of the planning, General Guenther Blumentritt said:

This advance through the Ardennes was not really an operation, in the tactical sense, but an approach march. In making the plan we had reckoned it unlikely that we should meet any serious resistance before reaching the Meuse. That calculation proved correct. We met no resistance in Luxembourg, and only slight resistance in Belgian Luxembourg—from the Chasseurs Ardennais *and some French cavalry.*

The main problem was not tactical but administrative—the complicated movement and supply arrangements. It was essential to utilize all roads and tracks that were to any degree practicable. The greatest possible precision was required in plotting the route on the map, in the regulation of traffic, and in the arrangements for protecting the movement against both ground and air interference. The many infantry divisions had to march on field paths and across country, interspersed among the armored divisions that were using the roads. The most intricate staff work was demanded in laying down start-lines for the successive Panzer blocks, while the beginning and end of each division's passage was precisely regulated by the clock. The terrain was difficult—mountainous and wooded—and the roads, though they had a good surface, were often steep and full of bends. The worst problem of all came later, in the passage of these densely crowded columns of tanks and infantry over the deep-cut valley of the Meuse—a very awkward obstacle.

Speed of Tanks Was Key

The chances of success essentially depended on the quickness with which the German Panzer forces could push through the Ardennes and cross the Meuse. Only when they were across that river barrier would the tanks have room for maneuver. They needed to get across before the French High Command realized what was happening and collected reserves to stop them.

The race was won, although with little margin. The result might have been different if the defending forces had been capable of profiting from the partial checks caused by demolitions that were carried out according to previous plan. "The destruction of the roads did much to delay our advance," Guderian told me. But fortune favored the bold, while heavily penalizing the side that was slow in reaction and old-fashioned in method.

It was unfortunate for the security of France that these demolitions were backed by no adequate defenders. The French had been foolish to rely on cavalry divisions to delay the invaders. As Guderian caustically remarked: "The resisting power of cavalry against armored divisions proved

insufficient!" They were soon routed, and the pursuing Panzers followed hard on their heels to the Meuse.

Golden Chance Missed

By contrast, an armored counterstroke against the flank of the German advance at this stage probably would have paralyzed that advance by its effect on the higher commanders. Even as it was, they were momentarily shaken by the shadow of a stroke toward their left flank. When on 11 May it was reported that a French force was advancing in that direction, Kleist ordered Guderian to halt his left wing division and turn it to meet the thrust. Guderian says: "This order, if followed, would have made almost impracticable the attack on Sedan and an early breakthrough."

As the threat came only from a French cavalry force, he decided to ignore it and push on. It was unfortunate for France that he had such confidence in tanks and did not share the anxieties that were prevalent among his military superiors.

A flank counterstroke was not the only risk of which Guderian's superiors were apprehensive. In giving me his account, Blumentritt said:

At the time we feared the Allied air forces. Had you attacked these enormous columns, there would have been terrible confusion. For instance, on the Semois we had a stoppage without *resistance that lasted 24 hours. This could only be discovered and disentangled by an officer in an airplane. But the Franco-British air menace did not have any weight. This was the first miracle!*

Blumentritt also dwelt on the failure of the French to develop their defenses, and their folly in not standing on the defense properly balanced.

The enemy could for months past have been drawn up on the Meuse. He could at the least have prepared field fortifications on the Meuse as an adequate extension of the Maginot Line. At the same hour that we crossed the German frontier he could have entered such prepared positions and calmly awaited the first arrivals of our troops—on the third or fourth day. Crediting him with such plans, we consequently anticipated on the Meuse the most violent and long-prepared opposition from French forces supported by heavy artillery fire.

According to plan the infantry corps were to attack the Meuse and force a passage for the subsequent crossing of the armored corps. But this would have occupied nearly a week while the infantry corps were coming up, taking up their positions and making their preparations.

Then the second miracle occurred. Receiving word that the Panzer divisions were already in position in the large forests on the heights of the Meuse north of Sedan, not only Kleist and I but the Army Group Commander, Rundstedt, drove forward to see them. From there we drove down to the Meuse—where the Panzer engineers were already working on a bridge. Here and there a few French machineguns were firing from small, ludicrous concrete emplacements on the west bank of the Meuse. That was all. We simply could not grasp this miracle—and feared that it was a French ruse. But in fact the dreaded Meuse position was almost nonexistent, and only weakly defended. Then the Panzer race across the river began.

Seeing how well the advance was going, Kleist had already, on 12 May, endorsed Guderian's view that the crossing of the Meuse should be tackled without waiting for the infantry corps to arrive. But arrangements had been made for a heavy air concentration, including 12 squadrons of dive bombers, to help in forcing a passage. These appeared on the scene early in the afternoon of the 13th, and maintained such a hail of bombs as to keep most of the French gunners down in their dugouts until nightfall.

Guderian's attack was concentrated on a one and one-half mile stretch of the river just west of Sedan. The chosen sector provided a perfect setting for forcing a passage. The river bends sharply north toward St. Menges and then south again, forming a pocket-like salient. The surrounding heights on the north bank are wooded, thus providing cover for attack preparations and gunpositions as well as fine artillery observation. For near St. Menges—as I have seen for myself when visiting the scene—there is a wonderful panoramic view over this river-salient, and across to the wooded heights of the Bois de Marfee which form the back-curtain on the far side.

Successful Crossing

The assault was launched at four o'clock in the afternoon led by the Panzer infantry in rubber boats and on rafts. Ferries were soon in operation bringing light vehicles across. The river-salient was quickly overrun, and the attackers pressed on to capture the Bois de Marfee and the southern heights. By midnight the wedge was driven nearly five miles deep, while a bridge was completed at Glaire (beween Sedan and St. Menges) over which the tanks began to pour.

Even so, the German foothold was still precarious on the 14th with only one division yet across the river and only one bridge by which reinforcements and supplies could reach it. The bridge was heavily attacked by the Allied air forces which enjoyed a temporary advantage as the weight of the Luftwaffe had been switched elsewhere. But the antiaircraft regiment of Guderian's corps kept a thick canopy of fire over the vital bridge, and Allied air attacks were beaten off with heavy loss.

By the afternoon all three of his Panzer divisions were over the river. After beating off a belated French counterattack, Guderian made a sudden turn westward. By the following evening he had broken through the last line of defense, and the roads to the west—leading to the Channel coast—lay open to him.

Yet that night was a trying one for Guderian—although not owing to the enemy.

An order came from Panzer Group Headquarters to halt the advance and confine the troops to the bridgehead gained. I would not and could not put up with this order, as it meant forfeiting surprise and all our initial success.

After a lively argument on the telephone with Kleist, the latter agreed "to permit the continuation of the advance for another 24 hours—in order to widen the bridgehead."

The utmost advantage was taken of this cautious permission, and full rein was given to the Panzer divisions. The westward drive of Guderian's three divisions converged with that of Reinhardt's two divisions from the Monthermé crossing, and also with those of General Hermann Hoth's two divisions from the crossings near Dinant. It produced a spreading collapse of French resistance, and swept through an empty space. By the night of the 16th the westward drive had gone more than 50 miles farther toward the Channel and reached the Oise. Yet once again the brake was applied, not by the enemy, but from above.

Hitler Was Apprehensive

The higher commanders on the German side were amazed at the ease with which the Meuse had been overcome, and could hardly believe their luck. They still expected a heavy French counterstroke against their flank. Hitler shared these apprehensions. In consequence he put a curb on the advance—halting it for two days so that the infantry corps could come up and form a flank shield along the Aisne.

Guderian's account shed more light on the pause, from the frontline point of view, and showed that the hesitation was not confined to Hitler.

After the wonderful success on May 16th it did not occur to me that my superiors might still be thinking on the same lines as before—that of contenting themselves with the bridgehead over the Meuse and awaiting the arrival of the infantry corps. I wished to put into operation the idea that I had expounded to Hitler in March—to exploit the breakthrough without halt until the Channel coast was reached. It seemed unimaginable that Hitler—who had approved Manstein's daring plan and raised no objections to my intended deep penetration—might have lost his nerve and stopped the immediate advance. But here I had made a basic error. This became clear next morning.

Early on the 17th I was informed by Panzer Group Headquarters that the advance must be stopped, and that I personally was to await General von Kleist, for an interview on the airfield at 7 a.m. He arrived punctually and began straight away with grave reproaches to the effect that I had disregarded the plans of the High Command.

Guderian maintained that he was fulfilling the spirit of the plan, and emphasized the danger that a halt would mean losing the initiative, but got no satisfaction.

I asked to be relieved of my post. General von Kleist was slightly taken aback, but then nodded and told me to hand over command to the next senior.

After the matter had been referred to higher quarters, Guderian was reinstated and given qualified permission to carry on strong reconnaissance. "Strong reconnaissance" as interpreted by Guderian had an elastic meaning and enabled him to maintain a considerable degree of offensive pressure during the two days' interval before the infantry corps of the Twelfth Army had begun to form a strong flank shield on the Aisne and he was allowed to race all out for the Channel coast.

New School Versus the Old

So much time had been gained in the preceding stages and so much dislocation had been caused on the opposing side that the pause on the Oise had no serious effect on the German prospects. Even so, it revealed a significant difference of time-sense on the German side. The gap between the new school and the old school there was greater than that between the Germans and the French.

Gamelin, writing at the end of the war, said of the Germans' strategic exploitation of the Meuse crossings:

It was a remarkable maneuver. But had it been entirely foreseen in advance? I do not believe it—any more than that Napoleon had foreseen the maneuver of Jena, or Moltke that of Sedan (in 1870). It was a perfect utilization of circumstances. It showed troops and a command who knew how to maneuver, who were organized to operate quickly—as tanks, aircraft, and wireless permitted them to do. It is perhaps the first time that a battle has been won, which became decisive, without having had to engage the bulk of the forces.

According to General Georges, who was the executive commander in chief of the battlefront, it was reckoned that the planned obstruction in Belgian Luxembourg was likely "to retard for at least four days" the Germans' arrival on the Meuse. General Doumeno, the chief of staff at General Headquarters, said:

Crediting our enemies with our own procedure, we had imagined that they would not attempt the passage of the Meuse until after they had brought up ample artillery: the five or six days necessary for that would have easily given us time to reinforce our own dispositions.

Credit Is Guderian's

It is remarkable how closely these French calculations corresponded to those made in the higher quarters on "the other

side of the hill." We can see that the French military chiefs had justification —more justification than was apparent immediately after the event—for their basic assumptions about the German offensive. But they had left out of the reckoning an individual factor—Guderian. His adoption of the theory of deep strategic penetration by armored forces operating independently, his fervent conviction of its practicability, and his consequent impulsion in stretching subordination upset the calculations of the French High Command to an extent that the German High Command would never have done of its own volition. It is clear that Guderian and his tankmen pulled the German Army along after them, and thereby produced the most sweeping victory in modern history.

The issue turned on the time factor at stage after stage. French countermovements were repeatedly thrown out of gear because their timing was too slow to catch up with the changing situations, and that was due to the fact that the German van kept moving faster than the German High Command had contemplated.

The French chiefs had based their plans on the assumption that an assault on the Meuse would not come before the ninth day. That was the same time scale the German chiefs had in mind originally, before Guderian intervened! When it was upset, worse was to follow. The French commanders, trained in the slow-motion methods of 1918, were mentally unfitted to cope with Panzer pace, and it produced a spreading paralysis among them.

Reynaud Saw Danger

One of the few men on the Allied side who realized the danger in time was the new French Prime Minister, M. Paul Reynaud. As an outside critic before the war, he had urged his countrymen to develop armored forces. Understanding their effect all too clearly, he telephoned Mr. Winston Churchill early on 15 May to say: "We have lost the battle."

Churchill's reply was:

All experience shows that the offensive will come to an end after a while. I remember the 21st of March 1918. After five or six days they have to halt for supplies, and the opportunity for counter-attack is presented. I learned all this at the time from the lips of Marshal Foch himself.

Next day he flew over to Paris, and there argued against any withdrawal of the Allied armies in Belgium. Even as it was, Gamelin was too slow in pulling them back. He now planned a deliberate counteroffensive in the 1918 way—with massed infantry divisions. Churchill continued to pin his faith to this. It was unfortunate that his mind remained in an out-of-date groove, as he had more capacity for action than anyone in France.

That day too, Reynaud made a move to replace Gamelin—summoning General Maxime Weygand, General Foch's old assistant, from Syria. Weygand did not arrive until the 19th, so that for three days the Supreme Command was in a state of suspense. On the 20th Guderian reached the Channel, cutting the communications of the Allied armies in Belgium. Moreover, Weygand was even more out of date than Gamelin, and continued to plan on 1918 lines. So hope of recovery faded.

In sum, the Allied leaders did things too late or did the wrong thing, and in the end did nothing effective to avert disaster.

MILITARY NOTES AROUND THE WORLD

UNITED STATES

New Designation

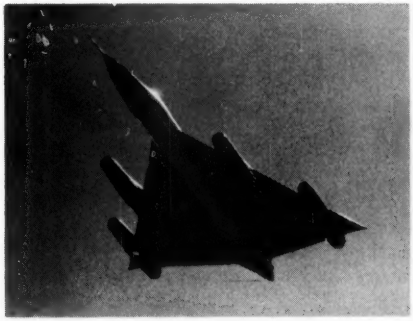
The Command and General Staff College, of which the *Military Review* is the official voice, has been officially designated the U. S. Army Command and General Staff College. The official abbreviation for the new designation is USA CGSC.—Official release.

Supersonic Bomber

The first United States bomber designed to fly faster than sound, the *B-58 Hustler*, has been successfully test flown. The triangular-wing *B-58* is expected to be able to fly more than 1,000 miles an hour. It is 95 feet long, has a 55-foot wingspan,

Hustler **takes off on test flight**

and a 30-foot-high sharply swept back vertical stabilizer. Elevons in the wing trailing edges combine the control functions of conventional ailerons and elevators. Equipped with four *J-79* turbojet engines with afterburners, the *Hustler* is designed to operate at altitudes above 50,000 feet. Sixteen major subsystems in the *B-58*, including the bomber's own defense



Supersonic *B-58* has deltawings

system, are virtually automatic and capable of accomplishing their work with a minimum of supervision. The *Hustler* carries a crew of three.—Official release.

Transparent Rubber Windshields

Silicon-based transparent rubber is being tested for use as an interlayer in windshield glass for supersonic airplanes. It will replace the plastic interlayer now in use which softens and loses its strength at temperatures induced by air friction at high speeds. The new interlayer is expected to enable windshields to withstand

twice as much heat as the plastic-glass combination.—Official release.

Interceptor Tested

The *F-106A*, a developed version of the *F-102* (MILITARY REVIEW, Jan 1956, p 64), has been successfully test flown. The new delta-wing interceptor will be capable of all-weather, day or night operation, and is designed to operate at stratospheric altitudes. The *F-106A* has a greater wing area than the *F-102* and is powered by a *J75* axial flow turbojet engine.—Official release.

Naval Developments

Recently announced developments in the modernization of the United States Fleet are the commissioning of one vessel in preparation for the testing of the 1,500-mile *Jupiter*, and plans to convert another into a research vessel; the equipping of a guided missile ship with fin stabilizers; the conversion of a light cruiser to guided missile capability; and plans to deactivate a battleship.

The experimental navigation ship, the *Compass Island* (MILITARY REVIEW, Jan 1957, p 67), will check the Ship Inertial Navigation System (SINS) with celestial trackers mounted on a special navigation tower. The vessel is also equipped with a

Experimental *USS Compass Island*

dome attached to the ship's bottom which houses sonar equipment now under development. The 17,600-ton *Compass Island*, converted from the merchant type *Garden Mariner* last year, is equipped with automatic steering and activated fins for roll stabilization. Another *Mariner* class vessel, the *Empire State Mariner*, is scheduled to be remodeled this year at a cost of about 13 million dollars.

The *USS Gyatt*, the Navy's first guided missile destroyer (MILITARY REVIEW, Feb 1957, p 63), is the first United States

Fin stabilized *Gyatt*

warship to be equipped with retractable fin stabilizers which are expected to give it good stability in the roughest water.

The 10,000-ton light cruiser, *Little Rock*, is scheduled for conversion to a guided missile capability. It will have facilities for launching the *Talos* guided missile aft, while retaining conventional armament forward.

The 45,000-ton *USS New Jersey (BB 62)*, one of the last three battleships now operating with the fleet, is scheduled for deactivation, bringing to 13 the number of battleships in mothballs. The two battleships still remaining with the fleet are the *Iowa* and the *Wisconsin*, both of the *Iowa* class.—Official release.

Rolling Fluid Transporter

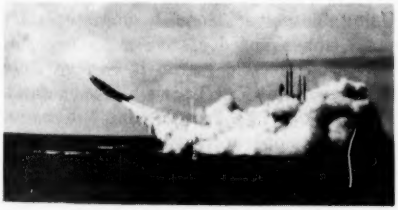
An outsize rubber bag inflated with liquids such as water, oil, or gasoline may provide the Army with a major improvement in the transportation of bulk liquids. The transporter consists of a series of collapsible, fabric reinforced rubber bags centered around an axle; the axles are in turn connected to a towing yoke. Although

each transporter has a capacity of 500 gallons and weighs 4,100 pounds fully loaded, six of them can be towed on level ground by an army jeep. They can be shipped readily by open rail car or barge with maximum safety.—Official release.

Submarine-Launched Missiles

Two United States submarines, the *SSG 317 Barbero* and the *SSG 282 Tunny*, are now equipped to carry and launch the *Regulus I* missile, and the Navy is reported to be developing an intermediate-range ballistic missile to be named the *Polaris*. The *Barbero* and the *Tunny* carry the 80-foot-long *Regulus* in a special waterproof cylindrical hanger and launch it from a ramp affixed to the deck. Launching can be accomplished within minutes after the submarine has surfaced.

The *Polaris* will probably have a range



Tunny* launching the *Regulus

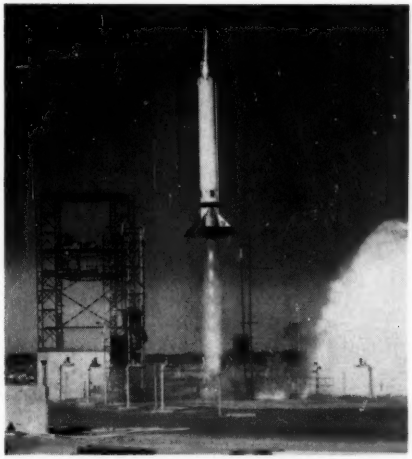
of more than 800 miles and carry a 1,000-pound atomic warhead. It has been indicated that the *Polaris* is expected to be ready for use within five years, and, according to reports in two monthly magazines, can be launched from submarines deep under water. A year ago the Soviet Union was reported to have developed a missile that could be carried and launched by submarines (MILITARY REVIEW, Sep 1956, p 72).—News item.

Merchant Ship Construction

Twenty-seven tankers and two bulk cargo ships have been approved for construction at an estimated cost of 325 million dollars. These are in addition to the 31 tankers approved for construction late last year. The new tankers will range from 25,000 to 65,000 tons each for a total of 1,088,250 tons. It has been announced also that 30 more merchant ships will be taken out of the mothball fleet and reconditioned. The world merchant fleet reached a total of 105,200,000 gross tons in 1956, an increase of 4½ million tons over 1955. The United States is first among major merchant fleets with 26,146,000 tons; Great Britain is second; and the Soviet Union is twelfth in merchant tonnage with 2,636,000.—News item.

Research Missile

The Navy's *Viking* research missile is now being test fired as part of the preparation for the earth satellite program. The



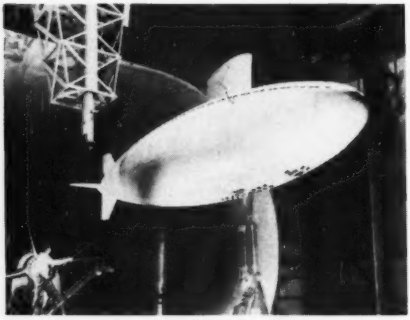
Navy's *Viking* research rocket

first stage of the three-stage rocket which will carry the earth satellite will be a modified version of the *Viking*. This 42-foot-long missile weighs about 7½ tons. In tests the research rocket has reached a speed of 3,400 miles an hour, and has risen to an altitude of 158 miles above the earth's surface.—Official release.

Nuclear-Powered Warships

The United States will build no more conventionally powered undersea vessels. The Navy has requested only nuclear powerplants in proposals covering submarines to be constructed under new budget plans. Estimates that the atomic submarines would cost twice as much as conventional undersea vessels have been reduced, and the new submarines are expected to cost only 40 percent more than the older craft. It was also announced that the 85,000-ton atomic-powered aircraft carrier now under construction (MILITARY REVIEW, Jan 1957, p 64) will cost 30 to 40 percent more than the 60,000-ton *USS Forrestal* which cost a little over 200 million dollars.

The Navy is exploring a family of atomic submarines to determine the best qualities for the atomic submarine of the future. In this family of undersea craft are the first two atomic subs, the *Nautilus* and the *Seawolf*, four small atomic vessels, a guided missile submarine, and a picket submarine now under construction (MILITARY REVIEW, Aug 1956, p 68), and six vessels with the *Albacore* hull design.



Scale model of *USS Albacore*

The *Albacore* is a small experimental submarine especially designed for high speeds under water. The powerplant of the *Seawolf* has been redesigned to eliminate leaks which developed in the steam superheater of the atomic plant of the vessel. It is expected that this redesign will result in a loss of power of about 20 percent for the 3,260-ton undersea craft.—News item.

Two-Man Submarine

The *Minisub*, a two-man submarine that can be propelled by either the footpower of its operators or by an electrical motor,

Foot-powered *Minisub*

has a hull made of reinforced fiberglass. Using footpower alone, a single operator can reach a speed of five miles an hour. With the electric motor it can go more than seven miles an hour while submerged. The *Minisub* is a free-flooding submarine. Each of its operators must wear a breathing apparatus and carry his own oxygen supply. The fins are swept back to allow seaweed to slide off. The tiny undersea vehicle is said to be extremely maneuverable.—Commercial release.

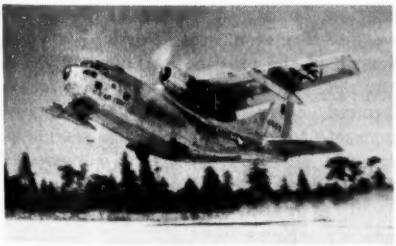
Rocket Research Plans

Plans for rocket research during the International Geophysical Year include 40 *Aerobee-Hi* rockets to be fired from Fort Churchill, Canada, and 10 more from the White Sands Proving Grounds, New Mexico. Forty *Nike-Cajun* rockets will be fired from Fort Churchill, and 30 others from White Sands and other points. About 40 *Rockoons* (MILITARY REVIEW, Oct 1956, p 67) will be fired in the Antarctic. A new rocket, the *Rockaire*, will be used to carry a payload of about 40 pounds of research equipment to a height of approximately 40 miles. It is hoped eventually to

send the *Rockaire* to an altitude of 100 miles. A unique feature of this rocket is that it is launched from a vertically climbing fighter plane.—News item.

Transport Aircraft

The *C-123 Provider* now in service with the United States Air Force carries all fuel in jettisonable fuel tanks to reduce fire hazard, and can be equipped with wingtip-mounted turbojet engines to assist in takeoffs (MILITARY REVIEW, May 1955, p 64). The turboprop *C-130 Hercules*, which has successfully delivered the heaviest single load ever parachuted—27,000 pounds—is being delivered to Tactical Air Command units and will replace the present medium troop carrier, the *C-119 Flying Boxcar*. The *YC-134*, a transport with radically new features, has demonstrated its ability to take off in less than 400 feet of runway. The *YC-134* weighs 65,000 pounds fully loaded, and has a wing span of 112 feet. A special feature of this plane is its "pantobase" landing gear which permits operation from all types of surfaces. This landing gear comprises a

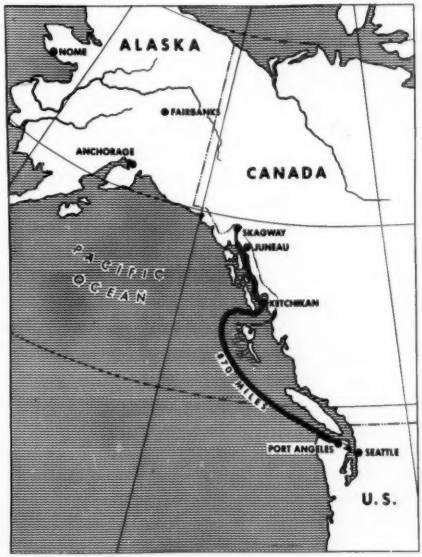


C-123 Provider

set of heavily stressed, retractable snow and water skis and fixed wingtip floats. For takeoff from water, the skis are lowered, and at about 20 miles an hour the skis surface and skim the water until flying speed is reached. The *YC-134* uses "boundary layer control" in which air is blasted backwards over the wingflap for extra lift in takeoffs.—Official release.

Submarine Telephone Cable

A 36-channel underwater telephone cable linking the United States and Alaska has been opened to public service. The Transportation Corps' cablelaying ship, the *Albert J Myer*, laid the 870 miles of cable in the new system which took over



United States—Alaska cable system

two years to complete. The cable system more than doubles the capacity of previous radio and land line circuits to Alaska, and will be used for both public and defense purposes.—Official release.

Rocket-Jet Plane

Conventional jet planes with rocket motors attached have been flown experimentally by the Navy in research for the eventual development of a combination rocket-jet aircraft. It has been indicated that a conventional jet engine would be the main source of power and that the rocket engine would be used to improve the plane's performance, especially at high altitudes.—News item.

BRAZIL

Purchase Carrier

The 19,000-ton aircraft carrier, *Vengeance*, has been purchased by Brazil from Great Britain and renamed the *Minas Gerais*. It is 695 feet long and 80 feet wide; has a 690-foot flight deck; is armed with nine 40-mm and twenty-four 2-pounder antiaircraft guns; and can carry 35 aircraft. It has a top speed of 25 knots and a complement of 1,300 men. It is the first aircraft carrier in any Latin American navy. In addition to the aircraft carrier, the Brazilian Navy consists of two cruisers, 17 destroyers and destroyer escorts, five submarines, two of which are on loan from the United States (MILITARY REVIEW, Jul 1956, p 70), and a number of escort and service vessels.—News item.

CZECHOSLOVAKIA

Helicopter Service Planned

It is planned that within four years the 10- to 20-passenger helicopters now being manufactured in Czechoslovakia will be used in passenger lines between Prague, Brno, Bratislava, and Kosice in the eastern part of the country near the Soviet frontier. After 1960 larger two-engine helicopters will be built, and plans to link Prague with Leipzig, Vienna, and Berlin are being considered.—News item.

FRANCE

'Flying Stovepipe'

The *Leduc 0.22*, a supersonic ramjet interceptor, has been successfully test flown. The *0.22*, nicknamed the *Flying Stovepipe*, has an initial loaded weight of 13,200 pounds, 30 percent of which is fuel. Nine hundred burners inside the ramjet engine consume fuel at the rate of over 5,000 gallons an hour. The fuel is carried in the wings and between the double walls of the fuselage duct. The wing has a 30-degree sweep back; the tail surfaces are also swept back. All wheels of the tricycle landing gear retract into the fuselage, the main wheels turning through 45 degrees and the nose wheel through 90 degrees in the process of retraction. The pilot of the *Flying Stovepipe* lies prone in the plane's plexiglass nose. Engineers have estimated that this unique plane will have an ultimate top speed of 2,500 miles an hour.—News item.

SPAIN

Oil Line Opens

The 41 million-dollar oil supply pipeline and tank system which the United States is building across Spain has received its first shipment—42,000 barrels of diesel oil. The oil was pumped into underground tanks at Rota, near Cadiz, and will be used in an exhaustive four-month test of the 485 miles of pipeline completed to Saragossa, its northern end. Three tank farms along this route can hold six million barrels of aviation fuel. The tanks at Rota will hold 500,000 barrels of reserves for the Air Force and 700,000 barrels for the United States Navy. Other storage facilities include a 370,000-barrel tank farm near Madrid and a 100,000-barrel storage facility at the United States airbase of Torrejon, near Madrid. The entire length of the pipeline is three feet underground. The storage tanks are also underground, covered with six feet of solid concrete topped with soil. The pipeline is capable of carrying several varieties of fuel including diesel oil, motor gasoline, aviation gasoline, and jet fuels simultaneously.—News item.

POLAND

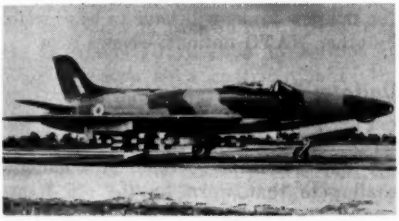
New Uniform

The Polish armed forces are discontinuing the wearing of Soviet uniforms. Although final selection of the new uniform has not been announced, it is understood that a modified version of the pre-World War II Polish uniform, to include the former "mortarboard" caps, will be adopted.—News item.

GREAT BRITAIN

New Version of the 'Swift'

The *Supermarine Swift Mk.7* is equipped to carry two *Fairey Fireflash* air-to-air, beam-riding guided missiles (MILITARY REVIEW, Jul 1956, p 72). Both the *Mk.7* and the *Mk.5 Swift* (MILITARY REVIEW, Jan 1957, p 71) are currently in production. Reequipment of the fighter-reconnaissance squadrons of the Royal Air Force with the *Mk.5* version began last year.—Official release.



Supermarine Swift Mk.7

Antisubmarine Frigates

Seven ships of the two new classes of British frigates currently under construction have already been launched. Five of 12 planned in the *Blackwood* class were completed last year, and two of six planned *Whitby* class frigates have been commissioned. The *Blackwood* class vessels are prefabricated and could be mass-produced in time of war. They are 310 feet long and displace 1,300 tons. The armament consists of three 40-mm *Bofors* antiaircraft guns, two sets of twin 21-inch torpedo tubes, and two sets of *Limbo* antisubmarine mortars. These frigates are said to have a speed of 22 knots.

The *Whitby* class frigates displace about 2,000 tons and are fitted with radar equipment for directing antisubmarine aircraft. This class is capable of a speed of 30 knots, and is armed with two 4.5-inch and two 40-mm guns, two *Limbo* mortars, and 12 torpedo tubes. The 18 vessels of these two types are replacing older types of frigates in the fleet.

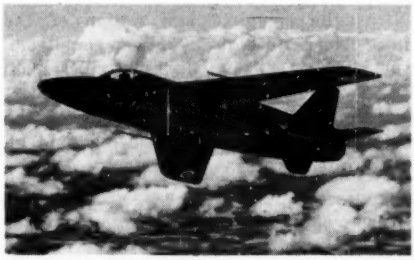
The *Limbo* is a large three-barrel mortar which fires depth charges ahead of the ship. It has a greater range, can be trained over a wider arc than previous devices, and has a greater explosive charge than World War II depth charges.—News item.

Rebuild Airfield

A World War II airfield on Gan, one of the islands of the Maldive group and a British protectorate 300 miles southwest of the southern tip of India, is scheduled to be rebuilt. The Maldive airfield will replace the British military airport at Katunayake in Ceylon, and provide an important link with the Australian base in the Cocos Islands, 2,000 miles to the southeast in the Indian Ocean. The building of this airfield makes it possible for British aircraft to fly from the Middle East to the Far East without flying over or refueling in any other country.—News item.

Light Fighter

In addition to the 25 *Folland Gnats* under construction for India (MILITARY REVIEW, Feb 1957, p 68), a number of these speedy lightweight jet fighters have been ordered by Finland. The construction of the *Gnat* is said to be extremely simple; the fuselage is assembled in three sections—nose, center, and rear. It is armed with two 30-mm cannon mounted in the air intake fairings on each side of the fuselage.



Lightweight *Folland Gnat*
(Copyright 'Aeronautics')

Underwing mountings for two 500-pound bombs or twelve 3-inch rockets are provided. The *Gnat* is equipped with a gyro gunsight, radar ranging, and is designed to use a braking parachute if necessary. —News item.

Vertical-Rising Jet

A five-jet plane which combines fast forward speed with the ability to take off and land vertically has been announced. Designated the *SC-1*, the delta-shape plane has two jet engines, pointing down from the fuselage, which are used to raise and lower the craft. The three other engines propel it in level flight. The plane also has an "autostabilizer" which controls it in the air while changing from vertical to horizontal movement. According to the manufacturers, it is powered by *Rolls-Royce RB-108* jet engines, and is said to be the successor to the *Flying Bedstead* (MILITARY REVIEW, Feb 1955, p 68), Britain's first vertical takeoff device.—News item.

NICARAGUA

Road Building Loan

A loan of two million dollars has been made by the Export-Import Bank to help Nicaragua complete her section of the inter-American highway. When completed, the highway will extend 1,590 miles from the Texas border through Central America to Panama City. Two-thirds of the cost in Central America is being paid by the United States.—News item.

WEST GERMANY

Armed Forces Developments

After field testing the British *Centurian* and the United States *M-47* and *M-48* tanks, the Defense Ministry has decided to adopt the *M-48* as the basic weapon of its mechanized divisions according to a report. Two armored divisions are expected to be fully trained and equipped by the end of 1957 (MILITARY REVIEW, Feb 1957, p 72). Each division will have approximately 200 tanks each, in addition to special tanks for mine clearance and bridge-laying. It is reported that the West Germans hope to develop a tank of their own which will be lighter and more maneuverable than any now available. Since the Germans plan on manufacturing no guns larger than 49-mm, weapons for the new tanks will have to be provided by other NATO nations.—News item.

Uniform Change

The present West German Army uniform, which is double breasted with wide cut lapels, is to be replaced by a uniform similar to that worn by the old Wehrmacht. The jackboot will be included in the new uniform.—News item.

Saar Joins West Germany

The tiny Saar Basin, with a population of one million people and an area of 990 square miles, has become the tenth state in the West German republic. Under the agreement, political control of the Saar has reverted to Germany but the economic transition will be spread over a three-year period. The French currency and customs controls will remain in effect until 31 December 1959; France will also retain the right to one-third of the Saar coal production indefinitely. The Saarland was seized by Germany in 1935; after World War II France occupied it and in 1947 gave it a politically autonomous status within the French Union. In an election over a year ago the Saarlanders voted to return to German control.—News item.

First Postwar Dirigible

West Germany's first postwar dirigible, the *Leda*, has been commissioned. It is 190 feet long, 56 feet high, and is powered by a 175-horsepower American-made motor. Since helium is unavailable in Germany, the envelope of the *Leda* is filled with hydrogen.—News item.

CANADA

Sell Jets to Germany

West Germany has agreed to pay 75 million dollars for 225 Canadian-built *F-86 Sabre Jet* fighters. Spare parts for the planes are included in the transaction. Canada also has agreed to train 360 pilots and crewmen to fly and maintain the planes at the expense of West Germany. Earlier this year Canada gave 75 *Sabre Jets* from the Canadian air division in Europe to West Germany as a contribution to the North Atlantic mutual aid program. Canada is replacing the *Sabre Jets* in her own air force with *CF-100* fighters (MILITARY REVIEW, Nov 1956, p 80). The 225 planes for West Germany are *Mark IV Sabre Jets* capable of speeds up to 600 miles an hour.—News item.

JAPAN

Undersea Tanker

Hull construction tests have been completed in preparation for building a submarine tanker. The projected tanker will be about 10 times as heavy as the *Nautilus*, and will have a cargo-carrying capacity of 30,000 tons. It will be 540 feet long and 69 feet wide, and is expected to cruise at a speed of 22 knots submerged. The big vessel will be nuclear powered and equipped with snorkel air intake and exhaust apparatus.—News item.

TAIWAN

Airbase Planned

The United States plans to build a 25 million-dollar airfield at Kungwan, Taiwan, for the use of the Chinese Nationalist Air Force. When completed, the new airbase will be the most modern on Taiwan, and will accommodate the fastest fighters and the heaviest transport planes now flying. Although being constructed for the Chinese Air Force, the agreement under which it will be built provides that United States planes will use it at any time and in the strength desired. This same type of agreement already applies to the other seven major airfields on Taiwan.—News item.

PAKISTAN

Receive Surplus

The United States has promised 275,000 tons of surplus food grains to Pakistan. The 20 million dollars Pakistan has agreed to pay for the grain will be remitted to that country for use in development projects, an educational exchange program, and defense expenditure.—News item.

USSR

Aircraft Code Names

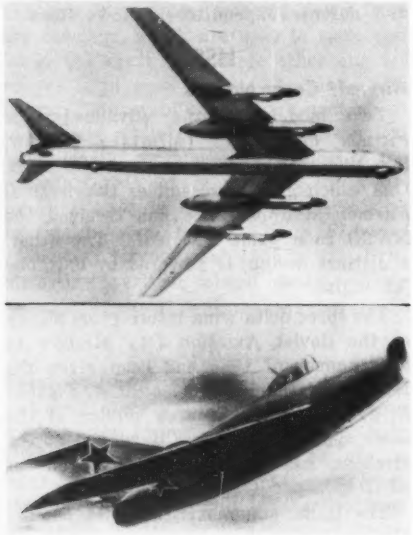
Two models of the advanced type *Farmer* dayfighters (MILITARY REVIEW, Sep 1956, p 71) are now known to exist. One which greatly resembles the original *Farmer* in appearance has received the NATO code name *Faceplate*. The other, a distinct design, is powered by only one jet engine.

The three delta-wing interceptors shown at the Soviet Aviation Day airshow in the summer of 1956 had been given the NATO code names of *Fishbed A*, *Fishbed B*, and *Fishpot*. A fourth version of the same type of plane, not displayed at the airshow, has the Soviet designation of *SU-D-4*.

The light, supersonic, twin-jet bomber displayed has three different versions—NATO code names, *Blowlamp*, *Blowtorch*, and *Blowpipe*. The extremely thin wing of this aircraft has about a 55-degree sweep back, and has a wing span of 66 feet. The main landing gear has double wheels which retract into the slender fuselage, and two assisting wheels which retract into fairings at the ends of the wings. The tail surfaces are swept sharply, and the horizontal control surface is set quite high. The leading edge of the wings has a fixed downward slant. The two axial-flow jet engines are carried in pods beneath the wings.—News item.

Soviet Combat Planes

The *MiG-17 Fresco* (MILITARY REVIEW, Aug 1956, p 70) is powered by a *Klimov VK 2* centrifugal-flow gas turbine of approximately 7,590-pounds thrust. There are three boundary layer fences on each wing, although early models of this plane had only two. It is armed with one 37-mm and two 23-mm cannon. The 37-mm weapon is said to have a 15 percent higher rate of fire than the weapons of the earlier



Bear and *Fresco*

MiG-15. The *Bear*, a heavy swept-wing bomber, is powered by four turboprop engines; each of the power units drive two contrarotating airscrews. The *Bear* is equipped with a "chin" scanner radome.—Foreign source.

Atomic Training

It has been reported that the Soviet Union has begun training and refitting her estimated 22 divisions in East Germany for atomic warfare. The report said that thousands of new type troop carriers and armored vehicles have been sent into East Germany for the use of the newly reorganized divisions. These divisions will be highly mobile and largely composed of self-sufficient units specifically designed to operate on atomic battlefields.—News item.

Atomic Icebreaker

The first Soviet ship to be powered by nuclear energy is now under construction. It will be an icebreaker (MILITARY REVIEW, Jul 1956, p 71). The boiling water type nuclear reactor of this ship will have a thermal power of 200,000 kilowatts. The vessel's 40,000-horsepower engines will give it a speed of 22 knots. At maximum speed it is expected to consume only two grams of nuclear fuel per day. The 440-foot vessel will be able to sail for two to three years without refueling, and will be used as a mother ship for convoys in north polar waters.—News item.

DENMARK

Receive Minesweepers

Five modern United States-built minesweepers will be delivered to Denmark under the American military aid program in 1957. These are in addition to three other minesweepers previously delivered to Denmark by the United States.—News item.

PHILIPPINES

Nuclear Center Pledge

Following an investigation of the problems involved in setting up the planned Asian nuclear center at Manila (MILITARY REVIEW, Jun 1956, p 71), the United States has pledged 20 million dollars for capital expenditures and initial operating costs of the installation. The United States also expects to make substantial contributions of men, money, materials, and techniques during the establishment of the center which will be used for training Asian scientists in peaceful uses of atomic energy.—News item.

FOREIGN MILITARY DIGESTS

The Panorama of Warfare in a Nuclear Age

Reprinted by the MILITARY REVIEW from an address by Field Marshal Bernard L. Montgomery as published in "The Journal of the Royal United Service Institution" (Great Britain) November 1956.

WARFARE, especially in a nuclear age, must be prevented if this is humanly possible. Let us start by examining this aspect of the problem.

There are today two great power groups, East and West, and the progress of science will soon enable each to destroy the other. The situation which would permit such frightful consequences must not be allowed to develop.

The political aim of the West must, therefore, be peace, and as things stand today it has got to be peace through strength and strength through unity. But there must be a real determination to protect and maintain our way of life in the face of aggression and, if necessary, we must be prepared to fight for this aim. President Roosevelt once said, "We have nothing to fear but fear itself." Certainly, the surest way to prevent war is not to fear it. Every activity of the western societies should be geared to this aim—peace through strength and strength through unity.

We service people must then be clear about the military object. In my view it can only be to prevent armed conflict. Of course, the aim would change if the circumstances change. For instance, should war be forced on us the aim would be to gain the initial advantage, and finally to survive. Today, firmness in dealing with aggression is vital. Readiness and preparedness are equally vital, in order to gain the initial advantage if we are attacked.

How can we prevent armed conflict? There are three contingencies.

Unlimited Nuclear War

No side would win this war. It must, therefore, be prevented and that is best done by means of a deterrent.

This should be twofold.

First, the power of instant retaliation by an offensive nuclear capability. This must be built up and maintained at a position from which it could physically destroy an aggressor, in any set of circum-

stances. Some people will say that the H-bomb is the "absolute" weapon and that nuclear war will, therefore, never take place. We cannot say that any particular weapon is "absolute" or that any particular type of war is abolished. Unlimited nuclear war could always happen by miscalculation or irrationalism. But we can say one thing with certainty—it will never be started by the West. Furthermore, if the deterrent is as I have outlined, fully ready to operate at short notice, unlimited nuclear war becomes less likely to be started by any nation.

There is a second prong to the deterrent which will make unlimited nuclear war still more unlikely, and that is the known ability of the Western nations to be able to defend their bases and national territories and to retain freedom to operate in the major oceans and seas.

Probably the most likely source of war today is the entry of eastern land forces into western territories. Such action would spark off a war at once. It can be prevented only by maintaining an interservice shield, maintained in position at all times. The importance of this shield is very great, and it is an essential component of the deterrent against unlimited nuclear war. The presence in the shield of efficient land forces, able to fight effectively without any mobilization procedure, is vital.

Limited War

I define this as armed conflict other than unlimited nuclear war. Some people think that when East and West have reached parity in nuclear weapons, neither side will use them. They are led to conclude that military aggression with conventional weapons—as for instance in Korea—can be undertaken without fear of nuclear retaliation. My opinion is that it is unlikely that a war as big as that in Korea could be fought again without the use of nuclear weapons. I consider that the West should state publicly that armed aggression against free peoples would be met with instant and adequate retaliation; that would be a risk an aggressor would not care to take.

There is only one way to handle an aggressor who tries to test our firmness in these matters, and that is to oppose limited aggression instantly by strength. I would emphasize the word "instantly." The advantage goes to the other side if you are not ready, and your preparations take time to complete—*whatever may be the type of war.*

Cold War

I define this as measures, short of armed conflict, which are used in the battle of wits between East and West.

If our strategy prevents global nuclear war, and provides means to deal *instantly* with lesser conflicts, it places a powerful weapon in the hands of our political masters. They will be negotiating from a position of strength, not unilateral or national strength, but from a stronger source, derived from the voluntary association of peoples bound by a common cause.

Over-all, it is my opinion that as things stand today we have in NATO the best organization for winning the cold war, and for ensuring that it does not develop into limited or unlimited war. If we use NATO wisely, and strengthen it politically, always keeping in mind our political aim of peace through strength and strength through unity, then the danger of unlimited nuclear war will become steadily diminishing.

If War Should Come

Now we must pass on and consider the problem that would arise if war should be forced on us, in spite of all our endeavors to prevent it. Service chiefs and their political masters are collectively responsible for reaching decisions about the pattern of future war, so that organization and training can proceed on the right lines. We do not seem to make great progress in this respect. The tendency is to discuss the opening phases; we neglect

the whole pattern. Perhaps we service chiefs are to blame.

The advent of the nuclear weapon demands a new conception of war, a full conception. I do not suggest that there will be any changes in the principles of war, but there will be fundamental changes in the way these principles are applied.

I propose that we should now peer into the future and have a look at unlimited nuclear war. We will best do this by placing ourselves at a vantage point from which we can survey the whole panorama. And, to get a balanced view, let us insulate our minds against the day-to-day pressures and influences which obscure clear thinking. This is not easy. But we can try, and I will give a lead. Time does not allow me to discuss limited war or cold war.

To get a firm background for our survey, I suggest we consider an imaginary war between two powerful groups of nations. We will call them East and West, and we will include the NATO nations in the West. And let us look back on the conflict, rather than forward to it as is the normal custom.

I propose now to turn myself into a historian. And I will address you from a position in time three years after such a global conflict, which occurred in an age of nuclear plenty for both sides and at a time when short- and long-range missiles were available as vehicles of firepower in addition to manned aircraft. The war began in 1966. The East was the aggressor. It is now 1969. Looking back at that war, I saw the pattern clearly, and it was obvious to me that the West survived only because it began to do certain sensible things in 1956—which we have not done yet.

The Phases of the War

I saw that there had been three distinct phases in the war:

Phase I—the Destructive Phase.
Phase II—the Exploitation Phase.
Phase III—the Reconstruction Phase.

Phase I: The Destructive Phase

In the initial phase of the war a large number of nuclear weapons were delivered by the manned aircraft and missiles of both sides. The destruction caused to life and property was great. I saw that the West gained an advantage in the initial exchange for two reasons.

First, great effort had been devoted to developing the Western intelligence organization and early warning systems. The West got warning of the attack and the initiative was regained in a matter of hours. The West could not have done this in 1956. At that time the intelligence machine was underdeveloped; the scientists had received insufficient direction, and their contribution to the field of intelligence had been largely untapped.

Second, the West had released their air and missile forces from the bondage of decentralization. Under central control the air forces of the Western nations had been welded into one mighty weapon; this weapon crippled the East's ability to deliver nuclear weapons very soon after she began to dispatch them. Until the Western nations brought their air forces under central control they did not realize what immense economies, saving of effort, and standardization were possible. For far less expenditure of wealth and effort, a far more efficient and powerful weapon was created; this weapon could be applied instantly to any target system in the world.

In the field of air defense the West had also made great strides. Starting in 1956, a realization that the air battle could not be divided in neat watertight compartments of offense and defense had led to the unification of the many air defense systems previously in being. Only by doing this were the Western nations able to get a unified policy and to develop the very expensive equipments necessary for modern war.

These then are the first two things I would tell our political masters today:

1. We need better intelligence, far better.

2. The West needs centralized control of its air and missile forces.

But let us return to my imaginary war.

On land, the Eastern armies advanced to contact on all fronts. But interdiction and nuclear "fallout" made all movement slow and costly. The ground fighting which followed contact was in many ways similar to previous wars. I noticed, however, two important points of difference.

First, the Western air forces played little part in the land battle in forward areas.

Secondly, the ground actions proceeded more slowly than had been expected, and certainly much more slowly than they had in the war of 1939-45.

These two points interested me and I examined them closely.

Air Forces

To take the air first. The East entered the war with powerful tactical air armies, the primary task of which was to support the land armies and, to a lesser degree, her naval forces. These tactical air forces gave this support for about four days. Thereafter, although they had nuclear and conventional weapons in numbers, they were unable to deliver them with piloted aircraft; the West had so disorganized the Eastern control system, and so destroyed their static airbase system, that the East could not sustain the operations of her tactical air forces.

The West, on the other hand, entered the war with *no* tactical air forces of the type they had developed in the 1940's and 1950's. They realized in good time that piloted aircraft with nuclear weapons were *not* the sole or even the main instruments with which to give close support to the land armies. The reason was twofold.

First, it was realized that the objectives of the land battle were no longer those of the 1939-45 war. The object in the land battle in a nuclear age is no longer to capture your enemy; it is to destroy him with atomic weapons.

And secondly, the communication system would be so badly damaged in the early exchange of nuclear weapons that it would not be capable of relaying the target detail in time—if at all.

The West had decided, therefore, that land armies must have their own organic atomic firepower on a scale which would enable them to destroy any enemy which managed to get into close contact. The air forces were to be used on the deeper interdiction and armed reconnaissance, which could to a large degree be preplanned and, more important, could be executed even if higher control were lacking.

This then is the next thing I would tell our political masters today.

Air forces are not the weapon on which the land armies should depend for their main support. They are *admirable* weapons for the deeper indirect support which I have already described. Instead, therefore, of wasting effort on developing tactical air forces to support the land armies, with the communication systems and operating procedures to provide close support, we should devote this effort to provide the weapons the army really needs, that is short-range missiles, and guns and howitzers, with small-yield atomic heads.

These weapons must be designed to handle all likely ground targets which have a direct influence on the land battle. For this purpose a "family" of weapons should be developed, having ranges varying from a few hundred yards up to the maximum range of the short-range missile. These weapons should be of a very simple type, easy to move and operate.

The army must be able to do something which has never been done in history, except by Genghis Khan. The "Small Bat-

talions" must be able to defeat the "Large Battalions." Air forces will play a part in this, but not in the forward battle area; they are not the right weapon.

Reconnaissance and intelligence, of course, the armies will still need, and the air forces must supply a great deal of this.

Land Forces

I saw that in Europe during this imaginary war that the function of land forces was "to hold." There were two main reasons.

First, it was the nuclear weapons of the deterrent forces, with their delivery systems, which contributed most to the offensive punch. Their function was to destroy, and the principle of economy of effort made it wasteful to launch land forces in addition.

Second, the land forces did not have to do more than hold and survive—nor could they have done so, because of the nuclear weapons *used against them by the enemy.*

I said just now that the ground actions had proceeded more slowly than expected. Why was that?

There were three main reasons.

First, the human mind. Every man on the battlefield in the early days heard and saw the effects of very many nuclear explosions, some far away, some very close. The effect was definite and marked. From the highest headquarters to the soldier on the battlefront, the human mind was so psychologically shocked that its efficiency deteriorated to a degree in which reactions were slow.

Secondly, the damage to communications, particularly at the higher echelons, prevented control, sometimes for long periods. Enemy jamming also interfered with control by wireless at all echelons.

Thirdly, the movement of formations was slowed by large areas of nuclear "fallout," and by millions of refugees on the roads. I noticed that the plans of the West to deal with the refugee problem were not adequate.

From studying these imaginary events we can see emerging the pattern of our ground forces of the future. Powerful, compact fighting divisions of all arms are what we need for unlimited nuclear war, capable of sustained fighting without reinforcement. The system of control within the corps must be simple, and should it break down, the divisions must still be able to fight. The corps will contain three or four of these powerful divisions. A corps must be able to fight without the interlocking support of other corps.

Divisions need their own nuclear artillery and short-range missiles.

Sea Forces

I then examined the war at sea. I saw that during the alert period which good intelligence had given the West, the fleets and task forces had been at sea. The long-range submarines of the East had also put to sea, but some of them had been detected and these were shadowed by Western forces until H-hour, when many of them were destroyed. The bulk of the Eastern submarine fleet never got to the focal shipping areas; they were detected, hunted, and destroyed on their way there and near their home waters.

The Western fleets in the main survived the initial exchanges of nuclear weapons and were, as a result, able to deliver great offensive firepower against sea, land, and air targets.

How were the navies able to do these things?

First, much scientific effort and money had been devoted to methods of detecting underwater craft *at long range.* These devices neutralized the advantages so long possessed by the submarine.

Second, the Western fleets had also provided themselves with large numbers of surface and underwater vessels, which could launch nuclear missiles. I will not

attempt to give these vessels names except to say that they were *not called aircraft carriers.* Most of the larger vessels were, however, equipped with vertical take-off reconnaissance aircraft.

The Easterners, who had never really understood naval power, were completely outwitted. They had, since 1945, placed much faith in their great submarine fleet, admirable tactics for the 1950's, but outmoded thereafter. They had fallen into the error of building for the next war in terms of the last—an error common to military men. Their great submarine fleet had no significant effect on the war at sea in Phase I—the Destructive Phase.

What can we learn from the naval operations in the war in 1966?

One thing predominates. The supremacy of the submarine *must* be eclipsed, because, as you will see when we examine Phase II, we shall need our naval power and merchant ships later. Seapower is very important to our success in the later phases.

Can we today say that we have mastered the submarine? Can we honestly say that we are devoting sufficient scientific and financial effort to developing means of doing so? I think the answer to both these questions is "NO." I know advances are being made, but not quickly enough; much greater effort is required.

Survival

That is how Phase I ended; it was suitably called the Destructive Phase. Before we go on I will summarize what we must have today as a minimum, if we are to survive the early stages of Phase I of unlimited nuclear war on a global scale.

First.—We must have far better intelligence than we have at present, to give us warning and to acquire targets.

Second.—The West needs to bring its air and missile force under appropriate centralized control, in order to destroy an enemy war machine and to defend our own.

Third.—We need powerful and efficient land forces, armed with suitable nuclear weapons which are mobile and easy to handle.

Fourth.—We need reliable equipment for detecting underwater vessels at long range.

Fifth.—We need fleets of surface and underwater missile firing ships. In other words, means of delivering great firepower from mobile bases.

Phase I Continued

I saw that during this phase other events occurred from which we can learn a great deal. Mobilization of reserve forces did NOT take place to any great extent in those Western countries which had been heavily bombarded with nuclear weapons. During the first two weeks a few formations were brought up to strength on a regional basis and moved to the battle area.

In fact, the armies which were "in being" in peacetime, and prestocked, had to do most of the fighting; they were not reinforced to any great degree.

I do not believe the present complicated mobilization machinery of the NATO countries will ever work under conditions of nuclear war. This subject needs intensive study.

The lesson is that the land forces which are deployed in peacetime to protect the territories of the Western nations must be kept up to strength, fully equipped, and prestocked. The shield must be firm, and able to handle a hard blow, thus gaining time for the retaliatory forces of the deterrent to come into action.

End of Fighting

When Phase I ended, there was no Eastern government or high military authority which could be found. By D plus 20 it was quite clear that, except for the arrival of occasional missiles with conventional warheads, the Eastern air forces were destroyed.

By D plus 25 the Eastern armies in contact were running out of fuel and ammunition; their casualties, which had been enormous, had not been evacuated or treated, and in many cases formations lacked control above regimental level. There were no coordinated land operations anywhere after D plus 30.

Between D plus 30 and 50, the remaining Eastern surface vessels and submarines had been eliminated.

That is how the fighting stopped, but it was not the end of the war; it was only the beginning.

Phase II: The Exploitation Phase

Great destruction and chaos were caused in Phase I. If the Easterners were in a bad way the Western allies were little better, except possibly in one or two respects.

The Western air forces retained a number of piloted aircraft and missiles, and there were still some nuclear warheads left.

The Western armies, like the Eastern land forces, had suffered very severe casualties and were not capable of movement to any great degree. The railways and the major road systems were severely damaged.

The Western navies had had casualties; but in comparison with the other armed forces of both sides, they were intact, powerful, and capable of further action. This was the situation which faced the Western nations on about D plus 45. How were they to survive? I saw that the Western leaders decided to do three things, and to do them quickly.

They were:

First.—Start reconstruction of society, industry, and government.

Second.—Counter any spread of communism which might arise from the wholesale misery and chaos that had been created.

Third.—Remove from the East her remaining nuclear capability and potential.

I saw that the West undertook these tasks in the second phase in the following way.

The Western nations considered that if they were to survive, the strength that remained to them must first and immediately be directed to the reconstruction of their own societies. *If further heavy military commitments were undertaken, the nations would become so weak that Western civilization would decay and disappear.*

There could be no question of taking thousands of Eastern prisoners or of attempting any large-scale disarmament of the East; the effort would be crippling. The Western nations could not feed and administer themselves, and they could certainly not expend any great effort on their enemy. *There was no question of occupation of Eastern territory in any form.*

What remained of the Western armies slowly advanced to the frontier of Eastland, driving the enemy units before them, using force where necessary. In fact, they needed very little persuasion. Those units which could be disarmed easily were, of course, disarmed. Those units which still had a degree of cohesion and control were ordered to march East; if they refused they were attacked with nuclear weapons. On the frontier of Eastland the West established a defensive belt, with light forces supported by nuclear weapons, having freed all satellite nations that Eastland had annexed in previous wars. No Western armies entered Eastland: no armies of occupation. Search parties yes, but no occupying forces.

The Western navies with the amphibious forces, including long-range penetration forces, established bridgeheads in Eastland. Some airfields were rehabilitated slowly. Transport, strike, and reconnaissance aircraft were flown in and the search was begun for the remaining nuclear effort, for the scientists, and for the techni-

cians. In some cases Eastland armed forces opposed this search and it was necessary for the Western forces to use nuclear weapons to enforce their will; but usually the threat of bombardment was sufficient to quell resistance.

Eventually, the commanders in charge of these operations reported that the task was as complete as it ever would be. All Western forces and civil personnel were then withdrawn from Eastland. It took the West about *two years* to complete this task.

By far the most difficult task confronting the allies in Phase II was to stop the spread of communism. The chaos and misery which had been caused provided fertile soil for that disease.

Phase III: The Reconstruction Phase

It took a very long time to rebuild the economy and society of the democratic world after such a war. The extensive use of nuclear material to produce power in all its forms would have reduced the length of this reconstruction period. The lesson for us today is that great advances will have to be made in the techniques for doing this, and in the methods of applying these techniques easily and quickly to the needs of industry and of society.

I have now given you a panorama of warfare in a nuclear age, some of the things we need, and some of the things we must do to ensure the survival of our Western way of life.

Logistics

You will have noticed that I have not yet mentioned logistics. The reason is that I found it quite impossible to visualize a war of the future being supported by our present logistic system.

It is time that we looked at this problem more realistically. Wherever I go I hear people say we want more of this and more of that.

We shall NOT get any more. We have a vast complicated organization for the distribution of material all over the world. Hundreds of committees in peacetime, and even more in war, receive millions of reports and issue thousands of instructions every day; no communication system will ever carry the load. Anybody who thinks the present system will work after thousands of nuclear weapons have been exchanged is mad. After the first nuclear exchange, nothing of any size or quantity will move on land in the areas in which these weapons have exploded or are exploding. *Perhaps at sea alone may surface movement on any scale be possible.* Hence the importance of seapower; it will be needed in Phases II and III.

There is not time to develop this subject further. It is sufficient to say that the most intensive study is essential in order to get us out of the logistic morass in which we are floundering.

I have tried to answer the challenge of the politicians and of the scientists:

What will war look like? and, In what direction should our efforts be directed?

I now propose to suggest how we should set about getting some of the things we need.

The Master Global Plan

The first thing we must do is to make a master global plan for the fight against communism. But we cannot make such a plan without a Supreme Authority for the direction of political policy and military strategy. The West is trying to fight communism; this is a global struggle and we must have a global plan. There is no global plan.

The Supreme Authority is needed *now* to make the master plans and to prepare all the Western nations for what might come, to tell them what parts they should play. They might not wish to play their parts, but that is another matter; at least they should be told; the responsibility for noncooperation will then be on their shoulders.

I have tried to tell you what I think the breadth and scope of these master plans should be. They must be based on the political association and aims of the West. What are our long-term political aims? We have none. What is the use of working for economic integration or of building up military strength, if the Western nations have not first agreed their political association and long-term aims?

Scientific Development

Here lies the key to saving money and applying it to the best effect.

But it is necessary to take risks—justifiable risks. We know by now what we need in the future, or we should know. We also have a good idea of what the future holds; the scientists have told us. There are many things we need, as, for instance, ballistic and guided missiles, vertical takeoff aircraft, nuclear powered navies, special fuels of high energy for everyday military use, small-yield nuclear weapons for the armies, and other things that I have already mentioned. They are all scientific possibilities, but it will be a long time before we have them in quantity.

The Missile Age

We must have a plan for the development of our forces as we move toward the missile age. That plan must be based on certain fundamental factors, some of which, in my opinion, are as follows:

1. By 1966 we will have seen the start of the transition to the period of the missile, and we will have begun to use the nuclear warhead for our firepower. From that time on, we may expect increasingly rapid progress in this direction until other means of delivery and other forms of firepower become the exception rather than the rule—at any rate in unlimited nuclear war.

2. Manned aircraft will not go completely out of business for a very long time, so far as can be foreseen.

For example, they will be needed for reconnaissance and for certain tactical tasks, since it is not possible to devise a machine which can deal with the unexpected; the human brain is required for that.

Also, a highly efficient strategic bomber force will always be required in the foreseeable future because of the great difficulty in getting the exact locations of interior targets in enemy territory. Furthermore, manned aircraft will be needed in limited warfare in undeveloped countries, and for cold war activities. And they will certainly be needed for transport purposes so as to give greater flexibility to armed forces generally.

3. In the not too distant future we will reach the stage where almost any amount of destructive force will be able to be dispatched from any point, to objectives at any range from zero miles to more than 5,000 miles distance. In fact, we can say that we are almost in that position today. Therefore, the interests of efficiency and economy will dictate modifications in our organization. Integration of control will be absolutely essential to the efficient accomplishment of military tasks. Theoretically, the ideal solution would be to combine all military functions into a single service, not by any blitz methods of attack but by a gradual process. But today this would not be possible. This is a pity as such a change would make the problem so much easier. There is today great duplication and great waste in service affairs; interservice rivalries and mistrust still distort our judgment and make sound decisions impossible.

This might be the ultimate solution but, whether or not we go this far, the barriers that now exist between services and their functions must give way. The independence that characterizes our service relationship today must yield in favor of interdependence.

4. In spite of aircraft of ever-increas-

ing capabilities, and in spite of the advent of guided and ballistic missiles, *there is still a need for well-organized and highly trained ground forces. They are vital to our strategy.* The concept of massed armies is a thing of the past. But we must have an effective shield on the ground, with an integrated atomic capability.

Nothing that has yet been seen or envisaged in the field of new weapons can replace the need for men on the ground actually holding territory which, without their presence, would certainly fall into enemy hands in war.

5. A major problem will be to devise a system by which national armies will be suitable for cold or limited war, *and also* for unlimited nuclear war on a global scale. For limited and cold wars, divisions need an offensive capability and light equipment. For unlimited nuclear war, divisions require a defensive capability with suitable nuclear weapons.

Nations with overseas commitments which might lead to limited war require some divisions to be located in the home country; these must be lightly equipped and the means must exist to transport them by air instantly to troubled areas. Other divisions may have to be deployed in areas in which only unlimited nuclear war is likely. In fact, nations with such dual problems need flexibility above all, so that the problems can be solved within the limits of financial possibilities.

To reconcile all these differing requirements within the field of practical realities will not be easy—but it must be done. *We should realize that as unlimited nuclear war becomes less likely, so limited wars and cold war activities will become more likely.*

6. The proper organization of manpower is of tremendous importance, in order to give confidence to the regular soldier, sailor, or airman that his future will be safeguarded.

In a world war the whole nation is mobilized and everything gives way to the fight for survival; there is no problem here.

But in limited or smaller contests the disturbance to the life of the nation should be as little as possible. At present, when some trouble arises, a "stop" is at once put on all regular personnel leaving the services. This makes it difficult for the regular who has made all his plans for retirement and has a job waiting for him. It is an irritant which has a most adverse effect on recruiting. The subject needs urgent study.

An organization is required which will enable the nation to take limited wars, or cold war activities, in its stride—without upsetting the planned lives of a valuable section of the community.

Civilian Morale

The secret of civilian morale under attack, as of military morale, is that the people should be told the truth about what is happening and should believe the situation to be under control. They must receive regular information and they must be told what to do. None of these things will happen unless full preparations have been made in peacetime.

They are not being made.

It is vital to understand that in a situation of nuclear equality between two sides, each of which has the most modern means of delivery, that side will survive which has the best organized homefront. The crucial problem will be the defense of home morale—not only the attack on enemy morale. Home morale is the business of Civil Defense. Civil Defense is vital to the modern fighting chief, because without it his base is not secure.

The political leader must be able to speak to the people. Newspapers must continue to circulate. It is relevant to ask a few simple questions:

Are there plans for moving broadcasting equipment and personnel to a reason-

ably safe place whence they could carry on their work during and after nuclear attack? Has the use of ships been considered?

Are there Western plans to ensure that if the broadcasting system of one or two nations is knocked out, other stations could carry on by taking over their wavelengths and providing a skeleton service?

Have the leading newspapers of each Western country been asked to prepare a war plan which would enable a small team with special equipment to produce a minimum national newspaper, or regional newspapers, under war conditions?

Many other such questions could be asked.

The above questions explain themselves. The answer to them is "No."

Therefore, our preparations for the maintenance of civilian morale in nuclear war are totally inadequate.

The Outstanding Points

Another world war in a nuclear age would be a most devastating affair. We fighting men are often accused of liking war; in fact, we are the people who dislike it most because we know too well what it means to humanity. But we have to plan for war, and be ready should it be forced on us by some evil man, or evil group of men who seize power and attempt to exert their will by force. Only in this way can we survive if attacked.

From lessons learned herein it is obvious that we must do everything possible to prevent a war from taking place; it would be suicidal for both sides.

We will not get peace by threatening war. But in the modern world peace can be assured only by military strength; this may be sad, but it is a fact. Therefore, we must maintain such a position of strength as will make an act of aggression very very expensive for the aggressor. Only in this way can we be assured of maintaining our objective of peace, *at present.*

Next, we are faced with a difficult problem to get the over-all military strength we need, and to get it within the limits of financial possibilities. It is vital that we in the fighting services should not blindfold ourselves with service partisanship, with outdated concepts, or allow our thinking to become shackled by doctrine and tradition.

The technological race with other nations is not the only problem. There is also the problem of organizing our defenses so that we may use the new weapons most effectively. Weapons usually outstrip strategy and tactics; the gap today is bigger than ever before.

The trend in service organizations today is toward service self-sufficiency. If we are not careful, we will have three independent self-sufficient Ministries of Defense. That is what would happen if each service was to have *all* the forces, and *all* the weapons, and *all* the equipment necessary to meet *all* its threats.

We must adopt a different approach to the defense problem; we must study it in a spirit of investigation and honest searching for the truth. We must remember that in a future war the decision will come to the side which can take the appropriate initial action very quickly, and which best uses its weapons from the outset; the decision will come too quickly to learn lessons and make changes.

In line with this thinking, it is time we took a new look at the jobs to be done, and the forces and weapons with which to do them. We must get busy *now*—before it is too late.

Since a lot of service controversy results from competition for the most important tasks, perhaps the roles and the missions in force today need revision. If so, let's do it.

Let us look at some other measures that might help us solve the problem. The idea of a single service has been suggested many times. Personally I favor it. But it

would not be accepted today. However, if we have another world war, I believe we would end up with a single service—or two services, the Quick and the Dead.

Then there is unified command. I favor this philosophy. It would help if we could get the men of all the services to identify themselves more as members of a mission, and less by the color of their uniforms.

To get better integrated commands we need more well-rounded staff officers to man them—officers who have a working knowledge of *all* the services. This, in turn, would require a more comprehensive, unified system of military education. Learning about all the services must start sooner—when an officer is commissioned, or even before. Today, many officers reach the equivalent rank of major before coming into contact with other services.

But the main need is to get the real truth about defense—the kind of defense we must have. If the truth shows we need a new organization, let's have it. Or if we need a new reorganization, let's do it. If realignment of roles and missions is necessary, let's do it.

I suggest that the proper way to tackle the problem is to think out and decide what the defense organization should be in 10 years' time.

We should then work toward it slowly, ensuring that each step taken is an advance toward the achievement of the long term objective. Who is doing this thinking today? For instance, in 10 years' time (in the missile age) do you see a very large Admiralty, a very large War Office, and a very large Air Ministry—in addition to a Ministry of Defense? Personally I don't.

The whole of our defense organization needs to be examined closely, working up to a Minister of Defense who has full responsibility and the power of decision.

Conclusion

I suggest you get a better approach to this subject in the way I have used—by looking back upon rather than forward to a conflict.

We have seen the need for planning and for approaching our problems of today realistically. It is probably a matter of opinion whether the main blow in future war will be delivered by the manned aircraft, supplemented by guided missiles, or the reverse. My own opinion is that by 1966 over 50 percent of the strategic tasks will be performed by missiles. As regards tactical air forces for the support of land armies—I consider that by 1966 about 75 percent of the present type will have been replaced by nuclear weapons in the hands of the land forces.

It is vital to understand that global warfare in a nuclear age will *not* be similar to the 1939-45 war, with the only difference that there will be bigger "bangs" and noises. Instead, it demands a complete overhaul of our strategical and tactical conceptions. Having grasped this basic and fundamental factor, it is then necessary to tackle the problem with imagination and realism and to bring into focus some of the greatest needs of our times—that is, intelligence, scientific development, plans, and, so far as we can achieve it, central control of some of our forces. It also demands an overhaul of the defense organization.

In this respect many points emerge from the picture I have tried to unfold before you.

One is that it will become increasingly difficult to define the tasks of each fighting service, or allot tasks by functions. We must try and move toward a greater unification of the services than we have today.

A second point concerns movement. It is clear that as time goes on, movement of any degree in unlimited nuclear war will be possible only in the air and on the sea. Movement by air is well understood and accepted; more and more must this be used to increase the strategic mobility of armed forces generally.

We must now exploit the sea in the search for mobility. A study of a global map shows at once the enormous advantage conferred on the side which has freedom of movement across the water areas of the world. On the seas the effect of "fallout" is not a serious factor and will not prevent movement.

Fixed nuclear launching sites on land will be vulnerable; on the seas all launching sites can be mobile and these will not be easy to locate and destroy.

The longer I study this problem, the more I reach the conclusion that airpower and seapower will provide the main offensive punch in unlimited nuclear war of the future. And their offensive power must, and can, be mobile. Landpower will be essential as a direct "stop" on the ground in order to protect our territories and peoples. But the strategy of those who fight on land will be defensive, since any considerable movement will not be possible.

The sea must be exploited increasingly to give surface strategical mobility and to provide mobile launching sites for nuclear weapons.

I believe the situation today is critical. Either we plan realistically for the future, and survive in a nuclear war—or we drift along, planning from year to year and using *ad hoc* methods, and end in disaster.

You may not agree with one word of what I have said. But that is not the point. If you do disagree, disagree constructively: go one better than I have.

So far we have heard nothing on this subject from any political or military chief in the Western World. If nothing is said, nothing will be done, and no plans will be made. We will then face the East with an archaic war machine, unformed ideas, and in a political muddle.

I have at least said something.

The future of Western civilization will depend on whether we tackle this problem with imagination and with realism—not tomorrow, but *now*.

Finally

In this address I have talked about war —nuclear war.

But it is my definite belief that if we take a good look at things *now*, and do the things we reasonably should, we will be able to look forward to many years of peace—with *no* nuclear war. But one thing is essential—the nations of the free world must live up to their motto:

Peace through strength
and
Strength through unity

The emphasis must be on the word "unity."

In a nuclear age, national wars are things of the past. No nation can do without allies; these may at times be irritating, but they are necessary. The trouble is that nobody seems clear about how to get the unity and unselfish solidarity which is vital if we are to oppose a strong front to the onward march of communism.

The source of inspiration in the free world should be like a lake of pure water, from which pipes carry the political policy and strategical guidance to the nations. But instead of this "Lake of Unity," we have about 30 political puddles.

What is needed today is a united Western Europe within the Atlantic Alliance, with a clearly defined political association. We can, of course, build up military strength, and defeat the East in battle. But what good will this do if, having survived the war, we lose the West to communism? The struggle between East and West is a struggle for the hearts and minds of men. In fact, it is *more* a political problem than a military one. But we tend to neglect the political problem, and to concentrate on the military approach. Both are essential. But the political problem must be solved first; and it will never be solved as long as the nations swim about, each in its own political puddle. The broad "Lake of Unity" is vital to the free world.

We have a long way to go before we can say that there is true unity among the nations of the West. True unity implies a willingness to make sacrifices for the common good; we do not see enough of this willingness today.

I often think that we service chiefs could do more to help than we do. Are not some of us too national in our outlook? Do we try and look at the world problems through international spectacles?

The best way to do all these things is to line up solidly behind NATO and to strengthen that organization politically and militarily. NATO must be kept viable and effective; we must redouble our efforts to keep it so.

I said at the beginning of this talk that our aim is peace. The surest road to peace is to hold fast to NATO, and to dedicate ourselves to its beliefs and principles; if we follow this road, we and our children may look to the future with confidence.

An Effective Counterguerrilla Procedure

Translated and digested by the MILITARY REVIEW from an article by Captain André Souyris in "Revue de Defense Nationale" (France) June 1956.

DURING the early post World War II period in Cambodia, an instability of government due to violent internal dissentions and growing insecurity on the frontiers presaged general anarchy—a bad outlook for the future.

Today, far from showing signs of imminent decadence, a new Cambodia assumes an increasingly important place in southeastern Asia.

This change was effected by means of a regroupment of the populations which permitted including the inhabitants in a system of self-defense. This procedure proved its effectiveness in the fight against subversion, which had won over the majority of the Cambodian population.

1951-52

During the years of 1951-52 the methodical action undertaken by the Vietminh and its accomplices was increasingly successful throughout Cambodia. The rebellious territorial organization enjoyed popular support and, in spite of all the efforts undertaken against them, held governmental authority in check.

In conformity with the principles of revolutionary war, the action of the rebels was aimed, first of all, at conquering the population. To this end, all the means of revolutionary technique were utilized, from propaganda and terror to guerrilla actions destined for strengthening the movement.

As soon as the locally responsible individuals were instructed, a solid, territorial organization was established. Each village constituted a rebel cell, and each village had its politico-military committee under the committees of the superior echelons of the cantons and provinces. A people's police force was charged with seeing that prescribed measures were applied. Moreover, organizations which grouped the inhabitants in accordance with their professional activities, and in accordance with their age and sex, were employed for the indoctrination and the conquest of minds. Trapped, thus, in a complex system of both physical and moral effects, the population collaborated in the expansion of the rebel system.

Alongside the zones of obedience certain sectors of the national territory were occupied by the organization of the *Khmers-Issaraks* or "Free Cambodians." More or less allied with the national organization, they employed the same meth-

ods of clandestine administration destined for maintaining the population in strict obedience.

In the midst of a population organized in this way, the rebel forces were shielded from all surprises. With easy means for obtaining supplies, with a security organization and a permanent intelligence network at their disposal, they could allow themselves either to fall back before hostile forces, or to attack by surprise when possible and without too many risks.

The French and Cambodian civil and military authorities realized that nothing of any actual value could be accomplished as long as the rebels enjoyed the support of the population.

Various systems of pacification based on the construction of fortified works destined for the protection of the governmental authorities and the axes of communication were instituted. These did not obtain satisfactory results *due to the extreme dispersion of the inhabited places.* By day, the rebels seemed to be nonexistent, but night favored their activities of propaganda and terror. It was the permanent presence of the rebel administration and the fear of reprisals which tipped the scales in favor of the rebellion.

Thus during the years of 1951-52, in spite of all the administrative and military efforts, governmental authority over the population decreased and the influence of the rebels correspondingly increased.

The Solution

The actual problem "boiled down," therefore, to taking away from the rebels the support of the population. To accomplish this the widely dispersed inhabitants had to be shielded from the reprisals of the rebels.

After many gropings and hesitations, the solution of following the precedent of the rebels was tried. The population was to be organized in such a way as to oblige it to side with the legal government, thereby ensuring its coordinated self-defense. To this end the habitations were to be regrouped in order to constitute large inhabited places in locations where they could be easily watched over by the government forces.

This solution had been tried with success in a frontier province in 1946. This province had been the victim of the Vietminh fury—at that period, *blind* fury —which burned the frontier villages. Rebuilt along the sides of the roads and highways, organized in accordance with a plan of defense and included in the frontier defense disposition, these villages were thereafter rarely disturbed. After that time this province was almost impermeable to the infiltrations and subversion which little by little extended over the rest of Cambodia.

Like methods were employed, with success, in the province of Kandal to protect the populations living along the banks of the Mekong and Bassac Rivers.

Regroupment of the populations seemed, therefore, to be the only method capable of dislodging the Vietminh *without leaving the possibility of a return* and, at the same time, shielding the inhabitants from its influence.

In spite of these examples, there was no official policy of reassemblage of the inhabitants. The initiative in the matter had been the responsibility of teams of men, civilian and military, and the action of the government was felt only in the form of relatively small material aid. It needed only the personal impulsion of the sovereign (who had become the chief of the government) for regroupment to be studied and carried out.

A Directorate of the *Autodefense of the Populations* was created in the Ministry of the Interior. Established on the basis of the particular situation in each province, the plan they evolved determined the zones where the regroupment would be accomplished.

The *method*, as finally settled on, was based on the following three principles:

The regrouped inhabitants must be able, without too many difficulties, to work their cultivated terrains.

The basic rule was to regroup the houses in such a way as to leave the inhabitants within normal operating distance of their sources of livelihood: rice fields or fishing areas. On the average the changes of locale of habitation extended from a few hundred meters to three kilometers, with the exception of certain forest hamlets which were regrouped at greater distances.

The locations of the new villages must be in accord with the requirements of their collective life with respect to sources of water, health, and hygiene, and must be sufficiently large to accommodate the intended inhabitants.

In each province special administrative teams were constituted to direct the operations. The locations were chosen, as far as possible, on state land, and when the land did not belong to the state, their owners exchanged those under cultivation for other pieces of land.

The new villages must be included in the defense disposition of the canton and province.

To this end the villages were regrouped close to a route or connected with it by a road either built or reconstructed to accommodate motor vehicles. Moreover, each village constituted a part of the network of defense. Surrounded by ditches and barricades, provided with protective blockhouses at its corners, the village constituted a strong point, all of whose men made up the local militia.

In addition, the security of each village was incumbent, militarily, on a counterguerrilla command. Located in the center of its zone of action, this trained and mobile unit continually made rounds outside of its base. Stopping in each village it brought the comfort of its presence to the inhabitants, and by means of the detachments which it constituted occupied itself with the instruction of the peasant militiamen who themselves defended their families and the terrains in which they labored.

It was recognized that the period of time between the harvesting of the rice and the rainy season was the most favorable for the regrouping of the populations. The other months of the year served for the preparation of the operations.

The regroupment zone, comprising several villages, was protected by the French Army from the beginning of the operation. Its units stationed themselves there permanently while the administrative teams, aided by propaganda specialists and specialists in medical assistance, gave themselves over to their particular work.

The peasants who were destined to assume posts of responsibility or to form armed groups were regrouped and underwent a period of civic and military instruction lasting two or three weeks, then returned home to their normal occupation. The soldiers took part in preparing the village and, at the same time, maintained security. They remained there until the stage of advancement reached by the defense works made it possible for local forces to resist the attacks of the rebels.

In the meantime, the permanent setup, composed of the village or canton authorities, provincial police, and the personnel of the counterguerrilla commands, was installed and took charge of the new defense zone.

The Results

In 1952 this method was applied everywhere where the situation required it: in a thorough manner in the worst frontier provinces, and in a sporadic manner in the provinces of the interior. This crowding together of the population brought about a veritable revolution in the interior of Cambodia.

During a single season close to a half

million of the inhabitants of the frontier provinces of Kampot and Takeo were ranged solidly on the legal side. They were sheltered from the influence of the Vietminh which had utilized their area for several years as an important zone of transit for the equipment and armament purchased in Thailand. The rebel war treasury, which had been largely fed by high duties on the abundant products of these provinces, found itself seriously reduced.

In the face of the new situation the rebel committees and their people's police either departed for the zones which were still rebellious or, more simply, submitted and became, in the majority of instances, excellent defense elements. Transformed into sufficiently strong defensive organizations, the new villages held their own against the armed bands which formerly had kept the inhabitants in permanent terror.

The collective labor occasioned by the regroupment created a sense of solidarity, of confidence, and force which is given by mass and numbers. It gave birth to the indispensable conditions for engaging the population in the struggle.

The regular Vietminh forces, left to themselves, no longer benefited from popular support—the basic condition for their action—and rapidly disappeared from the defense zones of the populations. The government forces, now well informed, found it an easy task to surprise them and crush them before they were able to reach their place of refuge where the forest permitted them to escape. Several of their bands suffered heavy losses in this way.

From that time on, the army units, now freed from their mission of domestic protection, could be used for operations in the zones still held by the rebels. No longer giving them the initiative, they were able to push them farther and farther, destroy their bases, and progressively widen the pacified zones.

The active solidarity of the population has permitted the creation of actual communities, the indispensable basic cells of political and social life. The new heads of the villages, of the defense militias, and of the various organizations have acquired a new conception of their responsibilities. A new elite, conscious of responsibilities toward their compatriots, has been constituted.

The drawing together of the populations thus created the conditions for an amelioration in the economic and social domains as well as in the political domain. It represents an important factor of its progress for the new Cambodia. A domestic revolution is being realized.

Objectives of Revolutionary War

This Cambodian example contains some very valuable lessons which merit special study.

It is certain that the factors which permitted the success of the defense actions of the Cambodian populace are peculiar to the country considered. This example, therefore, cannot constitute a cut-and-dried mode of combat against the classical methods of revolutionary warfare. From the study it appears, as a matter of fact, that the results were obtained through an adaptation of the system to each different region considered.

Nevertheless, such an experiment carried out on so large a scale demonstrates that a country of modest dimensions with but small material resources can solve its own particular problem of insecurity. It presents, in addition, general and specific information concerning a system which represents an efficacious counterguerrilla procedure—on this basis it merits further consideration.

The failure of police techniques in the fight against terrorism in the urban centers and the ineffectiveness of the methods of a regular army in the neutralization of the rebel bands in the rural areas are demonstrated in the results obtained. These

failures are occasioned, in the main, by the widespread influence of the rebel organization on the local population.

When the forces of law and order run up against the barrier of the active or passive complicity of the inhabitants, their initial strength progessively diminishes until the moment when the dominance changes camp. On one hand, the mass of the population participates more and more in the rebellion; on the other hand, the government elements continuously lose support.

The origin of such movements must not be attributed to traditional, economic, or social motives. The real causes are of a political nature: the objective being the seizure of power.

This is accomplished mainly through control of the population. Experience shows that when the inhabitants are drawn into the system of territorial organization of the rebels, the official side loses its authority.

The transformations observed in Cambodia as a result of the application of the methods used in the various political, economic, and social domains show that, far from restricting the development of a people, the system of the self-defense of population centers contributes powerfully to its evolution.

It is not one of its least merits that such a solution, while satisfying the need for security, at the same time gives the inhabitants new opportunities for development in accord with their legitimate desire for progress.

Tactics and Atomics

Digested by the MILITARY REVIEW from an article by Colonel M. F. Brogan in the "Australian Army Journal" November 1955.

ONE could be forgiven for believing that the advent of atomic weapons into the tactical field has in one bludgeoning stroke removed the finesse, the nicety of moves and countermoves, and the necessity for high proficiency in individual training and detailed staff work called for in the past. The awful power of these devices as compared to conventional weapons, together with the absence of any international convention governing their use (as is the case with gas warfare), portends World War III as a short succession of rapid holocausts in which all the tactical principles we have learned hitherto will be subjugated to the object of getting in first with the only blow required. One atomic device exploded somewhere near the center of gravity of the enemy's field forces would appear to resolve each operation.

Closer reflection, however, indicates that the foregoing conception is rather absolute and needs to be tempered with factual considerations. Some of these considerations are associated with the atomic devices themselves; for example, the time taken to deliver one at the right time and place. Others relate to the well-established principles of preservation learned in earlier warfare but to some extent overlooked since 1918—such as the protection afforded by solid earth and the vulnerability of mass attacks to firepower.

There is no doubt that while either side has an atomic weapon the "good old days" of warfare are gone forever, but, on the other hand, this does not mean that all of our current tactical doctrine must be scrapped. Indeed, without trying to oversimplify the issue, a theoretical investigation (and the price per atom bomb permits only this at present) will show that the

old principles, varied in application in degree only, will still prove sound. The degree will be in terms of such factors as ground, size of forces, mobility, protective works, time, and space. After all, the physical effects of an atomic explosion are heat, blast, and radiation, the two former of which are not new to war (albeit in a less efficient degree weight for weight) and the latter of which is now shown as not the inexorable killer it was first believed to be.

The rational approach to the use of atomic weapons would seem, therefore, to be somewhere on a line between resigning ourselves to hopelessness of combating them on one hand and regarding them as just a new series of explosive devices on the other. Admittedly, no sane person subscribes to either of these philosophies, but let us examine some tactical concepts to determine the weight due to each with a view to establishing a more realistic picture of the influence of atomic weapons on the battlefield. For the sake of simplicity it is proposed to cover each of the phases of war, that is, advance, attack, defense, and withdrawal, plus a final summary.

It is assumed that the vehicles available for the delivery of atomic devices are: aerial bombs, guided missiles, atomic artillery, land mines, and pre-positioned weapons, and that both sides have over-all parity in devices and the means of delivering them. This postulation is an unlikely one, but is chosen here for the sake of simplicity. Variation of these conditions or of other relevant factors would materially influence any conclusions drawn here.

The Advance

In recapitulating some of the more important principles involved in a successful advance (including the advance to contact, the followup, and the pursuit), we are reminded of the importance of the necessity to reconnoiter on a wide front, tactical surprise, the early capture of tactical features (firm bases), the maintenance of momentum, good control, intelligence, tactical grouping and local protection, sound logistics, and morale.

As in other phases the object might well be to force the enemy into a position where he will become vulnerable to atomic attack while ensuring we do not present him with a similar target. This emphasizes perhaps more than hitherto the early requirement for information, particularly relating to enemy dispositions, lines of withdrawal, defiles, check points, and administrative installations where suitable targets are likely to eventuate. The laying on of an air strike or the deployment of ground-to-ground missile units is presently indicated to take considerably longer than that involved in using conventional projectiles. This, and the fleeting nature of targets such as mechanized columns, underlines the importance of a streamlined reporting system based on a combination of reconnaissance aircraft, radar, agents, and armored vehicles. This system also would be required to report on enemy atomic preparations, such as the fabrication of launching ramps, which might be engaged by our offensive air support or counterbattery artillery.

On our part, the need for dispersion consistent with control and the requirements of local protection arises more forcibly. A concentration of a certain number of men to the square mile will constitute a density sufficient to warrant the use of an atom bomb. Axes of advance should be chosen where terrain, groupings, and speed do not combine adversely to produce an atomic target. The concomitant requirement of a reliable intercommunication system covering the necessary dispersion is a vital factor to the control of this type of advance.

Our selection of tactical boundaries could conceivably be modified by the enemy's possession of atomic weapons in the field. In the past the high topographical features which could be held against a

turning enemy have been most essential from the advancer's point of view. It is now well known that atomic blast from the air burst of a nominal (20 kiloton) bomb will kill at 1,000 yards by either heat flash or an overdose (2,500 Roentgens) of gamma rays. This lethality may not be possible from tactical weapons at this range, but the possibility remains that those exposed on high features may become casualties from heat flash and/or radiation alone, as well as blast.

Boundaries may, therefore, be selected where the ground offers good reverse slope positions and where personnel may gain a certain amount of protection from the "atomic shadow" provided by the figuration of the ground and its relationship to ground zero.

Where it is necessary that close contact be maintained regardless of the possible exposure to atomic explosions, the need to protect fighting personnel from the effects of such explosions stresses the need for having the maximum number of tanks, armored personnel carriers, and self-propelled guns well forward. In addition to the mobility necessary for this type of operation, such equipment affords an acceptable degree of protection to crews against all three products of fission. The crossing of radioactive ground or the concentration of forces for a quick tactical decision would appear to be directly related to the numbers of such vehicles which are available. This, balanced against the offering of a suitable atomic target when forming up, may well call for a nicety of tactical judgment on the commander's part.

The air aspect is a dominating factor. It is most likely that in an advance, at least a favorable local air situation will prevail. In addition to providing tactical reconnaissance, this situation could be exploited (subject always to the efficacy of the enemy's ground-to-air missiles) in such roles as bypassing of radioactive ground to seize tactical features with airborne troops; denying enemy air observation over our concentrations, installations, or movement; and resupplying field units where maintenance areas are liable to atomic attack.

The Attack

The following basic considerations in planning the classical attacks warrant attention:

Launching of the attack from a firm base and the gaining of firm bases for subsequent phases.

Penetrative power of the attack in depth on a narrow front (except across wide obstacles).

Security of lines of departure.

Early movement forward of supporting weapons.

Maintaining momentum.

The need to widen the gap of penetration to get behind and to outflank the enemy positions.

Of the above requirements, probably the most telling is that of momentum. If the attack is slowed down or stopped, and the enemy given the chance to regroup and hit back, the chances of our attack succeeding become slimmer. It is after the break is forced in enemy lines that this critical stage will probably occur, that is, when the enemy has recovered from his initial shock and has had time to get his defense plan (including his counterattack) into operation. At such a stage all our resources of close support, tanks, artillery, and offensive air are called into play. It is now that the extra punch is required.

Atomic weapons used indiscriminately in such a melee may clear the battlefield, but probably of both sides and with resultant indecision. Suitable targets would appear to be on the outskirts of the area and include headquarters, command posts, signal centers, artillery positions, tank assembly areas, and reinforcement routes. Thus interdiction on a tactical scale may

be achieved, leaving the mopping up to be done by the attackers using conventional weapons.

The preparatory stage of the attack will require somewhat more caution than hitherto. The massing of men and material in preliminary positions, such as concentration areas, and assembly areas, has always been fraught with a certain amount of risk, but now the vulnerability of such concentrations is even less acceptable. This may involve more such areas, smaller forces or more limited objectives, or some combination of these factors.

If our requirement of attacking with a maximum of momentum on a narrow front is not to be upset, we must face up to smaller, harder-hitting, mobile, protected forces extended in considerable depth in "get set" positions behind a secure line of departure. These, in turn, must be supported by adequate atomic firepower and backed up, if necessary, by tactically grouped reserves ready to bypass dog fights and maintain the initial impact of the breakthrough.

A cover plan to mask preparatory activity is indicated in the above atomic setting. Deception or simulations, to include dummy signal traffic, sonic devices, mock-up guns, vehicles, and tanks, should repay effort. Resupply of expensive and complex atomic devices to either side is not likely to approach the same scale as for conventional ammunition, and every abortive enemy round fired is a contribution to the unbalancing of his logistics.

Routes to lines of departure will require careful consideration to ensure that "man density" is not increased by reason of piling up at obstacles, defiles, and minefields. The arrival of a well-placed atomic missile among the attacking force during this opening gambit could involve the abandonment or postponement of the operation. This consideration will need to be balanced with the narrow front complex and may force the use of more axes on a wider front, followed by convergence after contact.

Once battle is joined, close contact as well as momentum will need to be maintained right through the pursuit stage. Thus the enemy becomes, in effect, an atomic shield whose proximity to our forces will lessen the likelihood of enemy atomic missiles being launched against the interlocked combatants.

It should not, however, be discounted that the enemy's philosophy and reinforcement position may be such that the simultaneous liquidation of both friend and foe will be justifiable in certain circumstances.

Because of the need to husband our resources of atomic missiles, the decision to use them will remain at a high level. For the immediate future and until all commanders are experienced in the use of these devices, a specially trained staff officer would appear justified to advise on the probable effects of atomic requests before they are approved. Such an advisor should be kept continuously informed of the tactical situation by means of a reporting and control organization possibly superimposed on the air support signal system.

As before, success will be materially affected by the local air situation, and the availability of tanks, armored personnel carriers, and self-propelled guns. These factors, if favorable, will enhance our ability to deploy and to take quick advantage of the targets presented by enemy concentrations.

The Defense

In this phase of warfare we have been taught conventionally to give emphasis to depth, concealment, all-around defense, mutual support, a coordinated plan including counterattack, the need to sustain morale, domination of ground between opposing forces, centralized control of artillery, protection of obstacles, and good communications.

Probably the greatest influence of atomic

attack will be to increase the depth of defense, and this means depth in two planes, deep in distance and deep down. The emphasis is on digging. Here the human element enters and, regardless of the latest scientific developments, the fighting soldier using hand tools can be expected to dig in at no more than the old standard rate of one cubic yard an hour. Therefore, to be effective against atomic attack, hasty defenses will require the application of mechanized equipment on a large scale.

To meet this situation, a case certainly exists for the formation of special earth-moving units with the primary role of construction of field works. (An empirical figure determined for Australian troops in World War II was that one brake horsepower was on an average the equivalent in output of two and one-half men. Assuming that a machine can work twice as many shifts as a soldier, one 35 horsepower excavator is the approximate equivalent of 175 men.) The indication is clear —more horsepower in the defense.

The requirements of all-around defense, mutual support, protection of obstacles, control, and good communications militate against the dispersion necessary to avoid mass casualties from the one blast. This points to small self-contained bastions of defense supported by more self-propelled artillery. The risk of penetration and defeat in detail must be countered by thicker minefields, and mobile, hard-hitting counterattack forces kept on the move or ready to concentrate for a quick decision. The need to disperse will reduce the effectiveness of control to a degree which will demand a high order of initiative in, and a granting of freedom of action to, junior commanders and leaders.

While avoiding concentration ourselves, it will obviously be to our advantage if we can force the enemy into a worthwhile mass formation in an area where he is exposed to our atomic weapons. In a defensive sector this may well be achieved by the large-scale use of tactical and defensive wire, minefields, and possibly radioactive material to render certain ground untenable. This presupposes a very deliberate defense, but may be possible in a modified form in a hasty operation.

A prerequisite to a successful defense against enemy atomic attack will be a high state of training and morale. Apart from the physical havoc to be seen immediately on detonation, it is going to demand a high state of morale and efficiency to keep a participant fighting with the knowledge that he has absorbed a lethal amount of gamma radiation and his remaining life can be measured in hours.

The selection of the ground to be defended in relation to vital ground will, in the future, be influenced to some degree by its relative exposure to atomic blast. Here, again, reverse slope positions seem to offer a certain attraction, but a lot will depend on technical developments, particularly in the fuzing of weapons and the accuracy of their control.

Concealment, camouflage, and deception will demand considerable attention. The combination of hiding targets and diverting enemy atomic ammunition to nonexistent concentrations is a tactical advantage and, in the long-term view, a dissipation of valuable enemy resources.

It is probable that the enemy will be aware of the atomic potential against him, and will be wary of massing large numbers for attack. Should he do so, however, it is imperative that this be discovered before he effects close contact. This will entail the pre-positioning and registration on our part of launching devices and/or atomic artillery, together with an efficient warning system.

Unless the defense has been organized on a deliberate basis and defenders are well protected, it seems unlikely that any close support in the nature of counter-preparation or final protective fire will be practicable from atomic sources. It is

more likely that such support will be reserved for harassing fire or softening up prior to a deliberate counterattack.

In the field of resupply our present system of road or rail bound convoys feeding static maintenance areas is relatively inflexible and liable to neutralization by a few atomic missiles. An overhauling seems necessary to reduce the amounts and types of supplies brought up. The means of bringing them up will likely be by aircraft requiring no elaborate forward airfield, that is, helicopters supplemented by fixed-wing aircraft in appropriate situations.

The Withdrawal

In this temporary phase of warfare, planning is usually directed to the withdrawal of tactical groups from, through, and to firm bases; simplicity commensurate with flexibility; strict timings and centralized control; secrecy; and the achievement of a clean break, together with the avoidance of a running fight.

Usually the adverse factor is time. The operation is started more often than not without much warning and is executed in a hasty manner. These circumstances react against the completion of reconnaissance, detailed staff work, and, most importantly, the completion of intermediate or main positions from which we can stand and fight back. The time taken to complete effective protective works against atomic blast, even with increased engineer support, is going to be protracted. The decision to hold intermediate positions must be carefully considered in the light of the amount of excavation possible in the time available, and whether it would be more prudent to divert this effort into preparation of the main position. Similarly, covering positions, being even less effective in stopping power, cannot be relied on against atomic assault.

A likely pattern of withdrawal, then, might be to move rearward in longer bounds, or one bound only, to a main position prepared with the extensive use of earth-moving equipment and mechanical minelayers. To enable the retreating force to gain its quick break and unmolested occupation of the new position, something drastic in the way of staving off the enemy may have to be done. This might take the form of an atomic barrage while the getaway is achieved, or if this is considered too prodigal, to attack in force with a grouping which is capable of changing to a rear guard role when the main body is clear of the action.

Really spectacular results should be possible with atomic devices in the demolition aspects of the withdrawal, but the tendency of enthusiastic vandals to crack nuts with sledge hammers will have to be watched.

The time and manpower involved in preparing demolition belts has given rise to two types of demolition—"preliminary," which are blown when ready, and "tactical," which are blown when tactically necessary. It is obvious that any large-scale preliminary demolition activity prejudices secrecy and militates against the clean break. The absolute destructive effect of atomic charges should reduce the work involved in preparing structures for demolition and eliminate the necessity for preliminary neutralization, thereby completely reducing the chances of disclosing our retrogressive intentions.

Once the rearward movement is apparent to the enemy and his followup commences, there will probably be scope for our inflicting delay by the detonation of carefully sited atomic land mines. Apart from the casualties inflicted by heat and blast, there will remain the persistent hazard of gamma radiation. Such deterrents located between primary demolition belts and supplemented by nuisance minefields should slow the pursuer down to the degree necessary for our disengagement and redeployment in the new position.

In common with the other phases discussed above, the requirement will exist

here to avoid concentrations of men and equipment, to provide a large degree of mobility and armored protection for personnel, to operate under a favorable air situation, and to ensure the provision of adequate earth-moving equipment.

Conclusions

The introduction of atomic weapons into the tactical fields has brought new problems into the conduct of operations. These problems can be solved using accepted tactical doctrine, modified to the degree imposed by the physical effects of atomic detonation in specific field conditions.

The major unit reorganization necessary is in artillery units to undertake the offensive use of atomic missiles. In addition, a real need exists to ensure that engineer support is of such a scale and so equipped that the provision of protective works against atomic assault is feasible in most field situations. Intercommunication and control systems now operative should be extended or duplicated to provide facilities for rapidly reporting, requesting, or approving atomic action.

During atomic activity, the need is emphasized to provide adequate resources of tanks, self-propelled guns, and armored personnel carriers to exploit or withdraw from atomic explosions.

Control of atomic missile expenditure should be vested in the most senior commander practicable and he should be assisted by a specialist trained in the technicalities of such missiles.

Some of the prime requirements in training for and conduct of field operations involving the use of atomic weapons are:

Mechanized, protected, and self-contained movement.

Freedom of tactical action for junior commanders and leaders—the encouragement of initiative and the stimulation of leadership qualities.

Concentrations of men, material, and maintenance areas must be avoided, and the aim must be to force the enemy into such concentrations.

Roadbound lines of communication are to be avoided, and flexibility in resupply achieved by the use of aircraft, with a reduction in the quantities of supplies brought forward, particularly creature comforts.

Maximum mobility and range of artillery weapons must be gained.

Maximum resources of manpower-saving devices must be provided to include a high proportion of earth-moving and mixelaying equipments.

Moves must be in long jumps between well-dug, firm bases.

Local air superiority is essential to successful ground operations.

Disperse, dig, disappear, and deceive.

REPRINTS

There Must Be Discipline

Translated and digested by the MILITARY REVIEW from an article by Major Heinz Karst in "Das Parlament" (Germany) 5 September 1956.

IN THE daily report of a German lieutenant on the Eastern Front in 1943, there is a significant passage concerning a capable noncommissioned officer who for weeks had been holding a bitterly contested position on the front:

The men are not good for much, frankly speaking, but this one man is worth a hundred men. What control he has over his men! How one can sense in every word the superior sureness of the veteran soldier! This man has not become soft, as so many others. He is not sociable in that way that betokens only weakness and, therefore, his men respect him. In his small bunker his weapons are in neat order: rifle beside rifle; hand grenades in a row ready for use; dispatch cases, a few books, and writing materials on a shelf on the wall; cooking utensils set out in correct military order on another. He who wishes may laugh at this, but I know today that these things represented nothing superficial, but were expressive of the best of traits in the soldierly character. Ask the common soldier; ask him whether he would prefer such a commander, or one of another type. The reply will come without hesitation: 'That noncom's all right!' The common soldier knows very well that at critical moments his life depends on the courage and energy of his commander.

Such statements, direct from the frontlines, are more expressive than many a carefully phrased statement from the pen of the professional writer. No military unit on earth can exist without strict discipline, whether in peace or in war. The ideas of discipline and the ability to "take it" have always been associated with the existence of the soldier by the man on the street—whether agreeing with it or not.

Undisciplined, disobedient soldiers, whose training has left them soft, never have the confidence of their fellow citizens and can not be worth the sacrifices that are made by their community for the defense of their country. Only militarily competent forces, excellently trained and equipped, will command that respect from friend and enemy that makes possible the protection of the peace of a free people. These are fundamental facts which no advance in the technique of armaments can nullify.

We all know from experience, however, to what a calamitous degree discipline and obedience can degenerate; how shamefully men may be treated on the pretext of discipline; and how petty noncommissioned officers may vent their choler in the name of discipline. It is often intentionally overlooked, but this degeneration has been discernible in all domains of our national life, not in army life alone.

Justified distrust toward servile obedience and heartless discipline must not be permitted to lead to the conclusion that there is no call for discipline in human existence and that in the armed services it is necessary only to a limited degree. We need it badly in our entire public life, from the traffic in our streets to politics, from the spoken word to the report in the daily press and over the radio.

We find a comparatively close agreement with this idea in a work of Theodor Eschenburg, who certainly cannot be accused of any tendency toward militarism:

To permanently ensure the democratic order of the state, that is, to render it proof against crisis, requires an enormous effort, namely, discipline in general and severity with respect to one's own self and toward others.

In the face of the altered military situation that is presented through the influence of technique and politics on international relationships, we need it all the more in the German armed forces. The demands on the soldiers are increased in every respect—physically, spiritually, technically, politically, and legally. How else can we account for the fact that the soldiers in the democratic countries like England, France, Switzerland, and America are subjected to a much "stiffer" training than was ever the case with us. Have we lost the correct idea of the value of discipline?

Training

Every virtue stands midway between two undesirable extremes. Thus bravery stands between foolhardiness and cowardice, obedience between opposition and servility, and discipline between anarchy and mechanical subservience. These indispensable virtues of human coexistence are continually threatened from the direction of their extremes—and this is true in all domains, not in the military alone. But this does not nullify their worth any more than the misuse of freedom nullifies the worth of freedom. We must recognize that the free order of existence, for whose protection we are arming, makes more severe demands on every single citizen than the totalitarian state, for the reason that it relies on our self-discipline and sense of responsibility rather than compulsion and punishment. If not, our public life can never go well no matter how prosperous our material existence may be. So long as we believe that the citizens in arms mean an easing-up of the rigid professional compulsion of the soldier and that obedience and discipline among citizens are matters for individual choice, just so long would a "democratic" army constitute only a testimony of our inability to live together in freedom.

Self-discipline is, more than ever, the indispensable foundation of military discipline. The soldier's collaboration in thought and deed, his initiative, his readiness to assume the responsibility of decisions, his voluntary compliance with the demands of the military system, his well-trained bearing, his upright manliness in the protection of his own dignity and that of mankind, his courage in the cause of freedom, his soldierly discipline, his spirit of camaraderie and readiness to help others—these are the things which give the army its "democratic" face. The "democratic" face is not obtained through an emphasized laxity of manners, comfortableness of training, easiness of service, curtailment of formalities, negligence in salutation, and civilian dress when the duty period is over.

Strict maintenance of discipline "is of benefit to all" in the service. Before one became a soldier, he may have entertained doubts about this matter. However, after he has traveled in a patrol boat in a storm, sat in a tank under a burning sun, or traveled in a jet fighter at supersonic speed, and has experienced the sober earnestness of the soldier's service, he no longer has any doubts concerning the matter.

Inner Consent

Voluntary compliance, self-discipline, and obedience based on consciousness of responsibility cannot be forced on a man nor ensured by punishment. This would be a contradiction in itself. They must be produced by training and practice and fortified by conviction. This high degree of consent to the task and of readiness to assume responsibility in the service is not always apparent in all soldiers or present from the very beginning in all recruits. Continual rewards and commendations, training, and punishment, if necessary, are the lot of those who resist. The same thing is to be found in the family, in youth organizations, and in industry.

Soldierly discipline in the German

armed forces must be based on the inner consent of the soldiers to the tasks and forms of the service. It must leave room for their initiative and good will and finds its expression in an alert and sportsman-like attitude.

Punctuality, accuracy, correct dress, cleanliness, logicalness in judgment and action, strictness, severity, training which approximates that required in war, a chivalrous and understanding attitude toward the weak and defenseless—these are the manifestations and means of indispensable soldierly discipline.

There are many individuals among us who are inclined either to overvalue or to reject outward form completely. As a matter of fact, the Silesian writer Friedrich von Logau is entirely correct when he states: "As things change outwardly, so they change inwardly!" It would be foreign to the truth to base discipline solely on the readiness of the soldier entering the service to comply with its demands, and it would be still more erroneous to base it on external compulsion. But firm methods of training, properly employed, are both a means and an outward expression of discipline.

Organized Sports

In no activities are means and outward expression more easily harmonized than in properly organized sports. Where the human individual is engaged in sports, that harmonization of form and attitude which we call discipline is the most easily realized. On this account, more space and time must be devoted to sports in the training of the German soldiers than was formerly the case and, above all, voluntary sports during the afterduty period should be stressed.

But the military service is no game. A continually sports-like concept by the soldier would not be consistent with the seriousness and responsibility of his mission. The true soldier, therefore, will subordinate the sports-like side of the service to that side that is deadly serious. To bear the load of this seriousness—to hold his own in the horror of the battlefield even when there is no commander and few comrades present—he needs a high order of self-discipline born of habitual impulses. Above all, there is needed the strength and courage imparted by comradeship and community of combat purpose.

Because of this the little combat crew in the submarine, in the tank, in the scout car, in the airplane, in the armored personnel carrier, and at the cannon will rank highest in its display of training. Technique demands this, as does also the human environment of the combatant. Political training, an understanding of our democratic and social order, and the experience derived from historical examples will help all soldiers to attain a deeper conviction of the rightfulness of their assigned task, and to achieve self-discipline.

Yet all of this: sports, group instruction, political indoctrination, and realistic combat training are not sufficient alone, if the human intercourse of the soldiers with one another is not in accord with simple, yet strict, disciplinary measures. From orderliness in rooms and shops to the salute and its return; from the phrasing of the report to the wording of the command; from the barracks duty to the unit ceremonial—the tendency toward a simple form, without undue wordiness or empty convention, must represent the prevailing style.

President Adenauer once said: "Our young Democracy must discover its style." There is no doubt but that the young German Army must also discover a style, a style which will correspond with the thinking of the citizens and which will be expressive of the disciplined selflessness of the military service.

What Type of Army?

Digested by the MILITARY REVIEW from a copyrighted article by Lieutenant Colonel L. H. Landon in "The Journal of the Royal Artillery" (Great Britain) July 1955.

FOR the last half century the British Army has had to cope with two problems: the problem of providing an army trained, equipped, and at all times ready for a colonial war; and the problem of providing an army trained, equipped, and ready at short notice to take its place on the Continent alongside allies in a major world war, and capable of very rapid and almost indefinite expansion. Perhaps as a result of this, the British Army has always been accused of preparing for the last war.

A hundred years ago these two types of war were so similar that the organization and training of one type of army could solve both problems. But the two problems have required different treatment progressively, until we have reached the point where they require *radically* different solutions. The one requires a "conventional" army; the other an "atomic" army. The organization, training, equipment, and supply of these two armies will have to be fundamentally different.

Peripheral Wars

Experience has proved that our present type national service army, assisted by the Gurkha Brigade and by troops recruited in colonial territories, is capable of giving a very good account of itself in peripheral wars fought with conventional weapons such as the conflicts in Korea, Malaya, and Kenya. There is little need to change our type of organization and training for these minor wars.

But it is doubtful whether this "conventional" army, based on national service, could stand up to the strains and stresses to which units and individual soldiers would be subjected in an "atomic" war. It is even more doubtful whether our present system of mobilization, our organization, and our supply system could stand up to an "atomic" war.

Atomic Wars

The first few hours, days, and months of the next war will probably commence with a surprise air attack from the east without any alert or even tension. Our first warning of the outbreak of war will be from the information provided by the global early-warning radar screen of the approach of Soviet bombers.

This will set off the great air battle—offensive and counteroffensive—during which the two strategic air forces will throw thermonuclear, atomic, and conventional bricks at each other and at each other's territories, both sides struggling to gain air supremacy and to eliminate the other at one blow. Unfortunately, in this duel the Russians will have the initiative: "He is twice armed that gets his blow in first."

What the Russian targets will be one cannot tell, but it is reasonable to think that Great Britain will suffer considerable damage, including damage to her ports, and in western continental Europe airfields, ports, and communications will suffer considerable devastation.

Task of "Atomic" Army

The job of the "atomic" army is, quite simply, to hold western Europe. Shoulder to shoulder with its allies it must prevent the Russian hordes from overruning free Europe. As Field Marshal Montgomery has pointed out, it will be useless to think of withdrawal from Europe with the object of liberating it at some later date as we did in the last war. After an atomic air offensive and a Russian occupation there will be nothing to liberate. The home of western civilization will have been

destroyed far more thoroughly than Roman civilization was destroyed by the barbarians.

Thus our "atomic" army must *hold.*

Conditions of Atomic War

As a result of enemy action our field army may well find itself virtually isolated from the base ports, although some supplies and reinforcements may trickle forward, landed over beaches and finding their way forward by any means still intact. But there will be no possibility of a formal mobilization and reinforcement of the field army with men, equipment, ammunition, and supplies after the outbreak of war as was the case in 1914 and 1939. Each formation and each unit will have to fight with the men it possesses and with the arms which it has in hand. It will have to continue to fight thus until it can be supplied and reinforced by air—until eventually the atomic desert in its rear can be cleared up and a normal supply system set up. This may take a very considerable time.

In addition to the usual unpleasantness—high-explosive shells, conventional bombs, bullets, flamethrowers, and tanks —to which he became accustomed in the last contest, the individual soldier may have to face direct attack by atomic weapons. If it is to escape heavy casualties from tactical atomic weapons, the army must operate in a state of *great dispersion* both in defense and in attack. This means that units, subunits, and the individual soldier must learn to fight alone, isolated on the battlefield and separated from his comrades. As Sir John Tedder indicated, the "atomic" army may have to go on fighting under enemy air attack without any immediate air support.

All this will put an immense, almost intolerable, strain on the willpower and courage of each individual soldier and on each unit and subunit commander. Only an army with the highest standards of discipline, morale, and individual training can possibly face such a strain and dominate such a situation. But it was for just these eternal soldierly qualities, in their highest degree, that the British regular armies, from Marlborough to Mons, were famous.

The problem, therefore, is one of overcoming the effects of the isolation of the field army as a whole from its bases, and the isolation of the individual soldier on the battlefield.

Isolation of the Army

Air-transportable formations to act as a strategic reserve are a definite requirement. This reserve should be trained, equipped, and organized for "atomic" war —that is to say that they should be an integral part of our "atomic" army—and must be kept at the same state of readiness as the field army in western Europe.

The reserve must be stationed within easy air reach of the battlefield of western Europe. It should not be situated in industrial or highly populated areas or near centers of air force activity, but should be kept in relatively unpopulated localities, such as the highlands of Scotland, parts of the Iberian Peninsula, or in parts of North Africa.

Its airlift may well form part of the Royal Air Force, but this airlift should be constantly trained with the "atomic" reserve formations and should be at the same state of immediate readiness. Whether this airlift should consist of conventional transport aircraft or of helicopters, or of a mixture of both, is a technical matter, but both the reserve formations and their airlift must work in the closest confidence and harmony.

Another requirement to overcome the isolation of the army from its bases is an "air bridge" logistical organization, operating from dispersed bases situated in underpopulated localities. The bases will consist of depots of personnel and of all types of material. The airlift for this logistic air bridge might well be organized

in the same way as that for the reserve formations: the same RAF command might carry out both jobs. This logistical organization must be kept in the same state of readiness as the field army it is to serve.

Isolation of the Individual

The second and more difficult problem is how to overcome the stresses and strains which dispersion on the "atomic" battlefield will place on units, subunits, and, above all, on the individual soldier, and how to maintain effective coordinated action between these isolated entities.

The power of an army is still based on the will to fight of the individual soldier, and he is still the most important single factor in war. The will to fight of the soldier is based on morale and discipline. These, in turn, are the product of mutual understanding, trust, and respect between officers, noncommissioned officers, and men, and are built up over a long period of cooperation in work and play—on duty and off duty. The will to fight of an army, and of each unit and man in it, is based on the confidence of each man in its commander—on each man's personal knowledge of the commander, his personality, his experience, and his past successes.

Wellington's soldiers defeated the much larger French armies in the peninsula and at Waterloo by virtue of their greater discipline. They had confidence in Wellington. They knew him personally and they had confidence in his skill and his experience—and his record of victories.

But the British Squares which threw back the French cavalry at Waterloo had a far easier task than the isolated British soldier will have on the atomic battlefield. At Waterloo each man fought in physical contact with his comrades—on each side of him and behind him—with his officers close by to give him the encouragement of their presence and example. The Square had a corporate morale. But the will to fight of the soldier isolated on the atomic battlefield will have to be based on morale and discipline of an even higher quality and texture.

Again, each soldier will not only have to be an expert in the use of his weapons but also in personal survival. He will have to be taught that it is more glorious to survive and go on fighting, than to die, however bravely. But to survive and to fight on the atomic battlefield the soldier will require a very high degree of individual skill and training.

Thus to overcome these individual and collective handicaps of great dispersion on the atomic battlefield, the army will require an infinitely high degree of morale and discipline, of individual and collective skill. If the army does not possess these high standards, it will collapse.

Can this standard be achieved by the present British National Service System? The answer is an emphatic unconditional "NO."

This is to cast no slur on the National Service soldier—some of the finest military raw material in the world. But the high degree of discipline and skill required cannot be obtained under a system of constant changes, postings, shuffling, and instability which is unavoidable in a two-year National Service System.

Requirements of "Atomic" Army

We must have a long service professional regular army for our "atomic" army. The men of this army will not be military morons—or the sweepings of the jails—but must undoubtedly be highly skilled military craftsmen, experts in arms and in survival on the "atomic" battlefield, welded together by discipline and long training into a skilled military team.

Their morale cannot be based on NAAFI (comparable to United States post exchanges) and concert parties, on films and television, for in history the best soldiers were those who have lived, and played, hard.

Their discipline will be based, as I have

said, on mutual respect and trust, the fruit of long association between all ranks in work and play and directed by experienced and tried commanders. ("There are no bad soldiers, only bad officers; no bad units, only bad commanders.") Their recreation will be games and sports—football, riding, skiing, and sailing. Their officers must be with them for long periods, broken only by the necessary courses at military schools. There must be an end of constant changing of stations. Each unit will be a family.

Their individual training will have to be long, careful, and very thorough. Unit and formation training will have to be continuous and realistic—training the individual and unit to act collectively in dispersion. The unit and the individual will have to learn to live and fight light; no masses or congested columns of transport—just a few cross-country vehicles backed by helicopters.

Their higher commanders in the field will be chosen from the best tried and tested regimental officers and staff officers of field formations, whose edge has not been blunted by long periods of polishing their ever-expanding bellies against the desks of the War Office and static headquarters.

The headquarters of the "atomic" army must remain field mobile. They must not be allowed to dig themselves in to comfortable billets, to provide ideal atomic targets for the enemy. Any senior commander who loves his comfort more than his mobility should be ruthlessly eliminated.

The readiness of the army for immediate action will have to be maintained by constant unexpected alerts and exercises. The strength of all units will have to be kept sufficiently above their war establishment to make good the wastage due to leave, courses, and sickness, so that at any moment every unit can take the field at full strength.

Such an army can only be a professional army. It must attract the best young men by good pay and conditions of service. It will get the men it needs if it keeps up its standards, for men enjoy serving in a good outfit, and they dislike serving in a sloppy and ineffective one.

Territorial Army

Total war will probably break out without warning. After it has started there will be no possibility of mobilization or of moving formations and equipment across the Channel. There will be no time for the territorial army to mobilize and complete its training. Will there then be no place or work for the territorial army? Indeed, there will. Their task will be twofold, and both tasks will be of the highest importance.

First, during the initial shock the territorial army will be required to uphold the will to fight of the nation at home, by acting as the spearhead of the home defense army. It must be ready to act in several different ways, to repel airborne or seaborne landings, as mobile civil defense columns, or to buttress civilian services in badly hit areas by reestablishing communications and essential services and backing up the police.

After the first shock is over, after the situation on the home front is under control, when the western air force has wrested air supremacy from the enemy and after a period of field training, the units of the territorial army must be ready to move overseas to be integrated into formations of the regular army—or as territorial formations to take over territory conquered by the regular field army or to reinforce the "conventional" army in "peripheral" territories.

And what about the War Office—the heart of the army? The War Office is the most efficient and humane bureaucratic machine in the country. It is far better as a humble individual to fall into the hands of the War Office than into those of any other ministry. But it is a bureaucracy.

Service in the War Office does not increase an officer's efficiency as a leader of troops on the "atomic" battlefield, or as a staff officer of a field army headquarters. Different qualities are required and we cannot afford to waste our best field commanders and regimental field staff officers by having them sitting in the War Office.

Only the highest level officers of the War Office should come from the field army, and not all of these. The working staff should be made up of specially recruited military "civil servants," retired officers, and officers found to be unfit either physically or mentally for the arduous service in the "atomic" field army. The same applies, in a greater degree, to all static headquarters in Great Britain.

Conclusion

If the above considerations are true, then we should take the following steps:

1. The formation of a small highly disciplined, highly trained, fully equipped, war strength professional regular army, stationed partly in Germany and partly as air-transportable formations within easy air reach of western Europe. This army must be ready for instant action, and must have its reserves of equipment, ammunition, and men within immediate reach. It must be ready to fight at any time with what it has with it, without relying on mobilization, reinforcement, or immediate supply. The air-transportable formations will constitute the strategic reserves in the hands of the supreme commander in western Europe.

2. The formation of an air transport logistic corps—using helicopters and conventional aircraft—to supply this regular army. This corps must be able to work from dispersed bases at considerable distance from the troops.

3. The formation of a civil defense army in the United Kingdom under military discipline with military training as well as civil defense training. This army will be based principally on the territorial army.

4. The formation of a colonial service army for peripheral wars—trained and equipped on conventional lines with conventional weapons. This could be partially a national service army with regular officers—partially an army recruited in colonial territories—and, of course, the Gurkha Brigade.

Is this practicable—can we afford it? The answer depends on finance and the morale of the nation.

If the welfare state cannot afford to pay the kind of army which is necessary for the defense of its freedom, and if the welfare state cannot find the men to serve in a hard-living professional regular army, then Great Britain will go under in the next war and will deserve to.

But if the government is strong enough and courageous enough to tell the country the truth and to give the country a lead, then the country will respond. Our whole history is there to prove it.

Next time there will be no period of grace to give us time to prepare—there will be no phony war. We must be ready or we shall go under if war breaks out.

If we really are ready, there will not be a war. The price is well worth paying.

The Burden of Our Time

Digested by the MILITARY REVIEW from an article by Willy Bretscher in the "Swiss Review of World Affairs" (Switzerland) December 1956.

THE last two years have been marked by the signs of an external "relaxation" in the USSR. With Moscow's brutal military intervention in satellite affairs all the basic theses of recent Soviet Russian foreign policy have broken down; "relaxation," "peaceful coexistence," "noninterference"—all these propaganda slogans have gone with the whirlwind of the events, and with them have gone the Western illusions about a change of the Bolshevist regime.

In view of these events there is no longer any use in racking one's brain on what the "de-Stalinization" in Soviet Russia may mean, or engaging in considerations of how the Politburo has gained the upper hand with the "victory" of the Soviet tanks over satellite fighters for freedom.

What is certain, and what we have to keep firmly in mind today, is the fact that when an oppressed people tried to loosen its chains, the Bolshevist regime beat it down ruthlessly through the intervention of the Soviet Army. For according to the doctrine of Marxism-Leninism, revolutions can occur only in "Capitalist" states—on this point Stalin's successors may be assumed to agree. Whenever students, workers, and peasants rise up against the suppression of individual and national freedom anywhere in the "Socialist world system," they are sure to be considered "counterrevolutionaries" and "Fascists," who in the holy name of socialism must be destroyed by Soviet armed force.

This simple Bolshevist formula, which can transform even Party card-carrying workers into "Fascists" at a moment's notice, has been carried to its ultimate in the smothering of insurrections. Quite on the pattern of Stalin, who (according to Khrushchev) expanded the term "enemy of the people" to such an extent that he was able to apply it to any opponent to destroy him, his successors proceeded against a genuine people's uprising in a satellite state. One can actually speak of a "re-Stalinization," for by this pattern the entire arsenal of the dead dictator's devices—craft and treason, force and terror—has been mobilized to put down the "enemies of the Socialist revolution."

The self-revelation which Stalin's successors were forced to carry out with the military intervention in Hungary has still another significant aspect.

Power

For the first time it has become perfectly clear to the world that in the obtuse mixture of Communist doctrine of salvation, the urge for power and world domination takes precedence over all spiritual and ideological factors, and constitutes the real substance of Soviet communism. The Soviet collective dictatorship in the Kremlin has shown that its major interest is naked power. The Communist social religion serves them only as a façade and vehicle for their claim—nihilistic in the final analysis—to absolute rule.

We are confronted here with an imperialism that appears completely dehumanized, and with a particularly hideous brand of "colonialism," if this word can be applied to a system of exploitation wholly unmitigated by as much as a spark of a sense of responsibility toward the peoples subjected to a status of unprecedented serfdom. It is the sudden instinctive realization of this terrible truth which shakes people in the West most deeply today.

It has become evident now how quickly the dynamism unleashed by the "de-Stalinization" and the related recognition of

Tito has jumped the tracks that Khrushchev had meant to lay down for it. The upheaval in the Communist Party of Poland and the national insurrection in Hungary are only the most visible and impressive signs of a general unrest prevailing in the satellite area which Moscow seeks to master by making a deterrent example of the Hungarians. Thus elementary forces and instincts cannot always be "controlled," and history may not be expected to run automatically true to the textbooks of the disciples of dialectical materialism.

New Policies

The question of what new policy the rulers in Moscow will institute in this critical stage in view of the failure of the "coexistence" and "people's front" formula and in view of the simultaneous discrediting of the whole "Socialist peace camp," cannot be answered as yet. It appears that the Soviet rulers may themselves be uncertain, and possibly in disagreement with each other, on the course to be taken. The same impression can be derived from the frantic alternation of political and propaganda moves, threats, and assertions of peaceful intentions with which the free world is being showered from Moscow.

While some of these moves, such as the Russian disarmament offers, can be regarded as a desperate attempt to revive the idea of "peaceful coexistence" *in extremis*, other signs point to the disquieting fact that the masses in Russia are being conditioned anew to reckon with the existence of "Western warmongers" trying to destroy socialism and its Soviet citadel.

Foremost, however, is the other important question—whether the West will at last develop a concerted policy toward Soviet imperialism commensurate with the danger. The fateful weakness of the West so far has consisted, above all, in the lack of a realization of the nature and meaning of the global conflict between the system of government by tyranny and the forces of freedom. The countless deplorable fluctuations of mood and attitude and differences of opinion and evaluations have made it impossible for the free world to meet Moscow's psychological-political warfare in any adequate manner.

Dominant Issue

The West must realize that the Communist threat constitutes the dominant issue of our time, that it is at the root of a conflict on a planetary scale, overshadowing all the other problems and conflicts which can only be judged in reference to it. The West must be cured of the dangerous illusion that a total threat can be defeated with partial measures. It must realize, and act on the realization, that Soviet communism in all its manifestations—as a political and military power, as a militant social religion, as a method and movement to overthrow the existing order—must be opposed with the appropriate armaments and defenses.

How shortsighted were the peoples of the West, in Europe as in America, when they rashly concluded from all the talk about "coexistence" that they would now be able to relax their military efforts, since the "peaceful competition" between communism and capitalism as proclaimed by Moscow would concentrate primarily in economic and social fields! How wrong was the opinion that it was no longer necessary to match Russia's armaments in the field of conventional weapons, since any future war would be an atomic war! *Hungary's tragedy, in which the "nuclear stalemate" between the big powers made an effective Western counteraction impossible, contains an urgent lesson for all those politicians who in the past few years seized on every reason and pretext to delay or reduce the armaments previously considered indispensable.*

What did they think when Bulganin

boastfully asserted that the Soviets would be able to overrun Europe without employing any nuclear weapons? What about those who, by constantly complaining about the burden of armaments and clamoring for more and more social benefits, have given rise to the illusion that Russian tanks could be stopped by the waving of social security cards? What did they think when they heard about the Russian tanks turning up in Hungary? Has it become clear now that armaments, social reform, and measures for the protection of the state are not alternatives to choose from, but that all of them are equally necessary for the defense against communism and must add up to a whole?

The threat of totalitarianism is "the burden of our time," as Hannah Arendt put it in the title of her grimly revealing and deeply disturbing book. It is not easy and it is not pleasant to have to live in a sort of companionship, actually, and for an indefinite time, with this continuous threat. But by assuming the burden consciously and courageously we can save ourselves from the worst, which would be to yield to the most terrible challenge of our time without putting up an honorable fight to the finish. "One need not hope in order to act, nor succeed in order to persevere" —these words of William of Orange may well hold a message for us at this portentous hour.

You share with those of us in the Armed Forces an important task—the task of protecting and preserving the fundamental beliefs and institutions of the United States—beliefs and institutions which are so sacred to us that we declare them to be self-evident.

Frankly, I get the feeling that we sometimes are not doing as well as we think we are, or as we should be. We seem unable, or too lazy, to do enough to explain, teach, and most of all—demonstrate publicly before the world the fundamental, basic facts of liberty.

For example, here at home too many young men come into the Armed Forces with too little understanding of their responsibilities for citizenship. There are too many who are apathetic toward responsibility and complacent about the long-term continuance of their society.

We who are free must face up to our responsibilities in this battle for men's minds. We must know and understand what liberty means, and be convinced that it represents the best way of life in today's world. More than this—much more than this—we must be able to demonstrate this conviction to others. The force of example is more eloquent than words.

Admiral Arthur Radford

BOOKS OF INTEREST TO THE MILITARY READER

THE RED ARMY. Edited by B. H. Liddell Hart. 480 Pages. Harcourt, Brace & Co., New York. $6.00. (Published in England under the title *The Soviet Army*.)

BY LT COL HOWARD L. FELCHLIN, *Inf*

In view of the present turbulent world situation, it is most appropriate to appraise anew the military might of the Soviet Union. Rather than attempt a personal analysis of the Soviet Army, Mr. Liddell Hart has called upon a group of eminent experts representing six different nationalities to express their views on selected aspects of the Soviet Army from the days of its inception to the present era. As a result Mr. Liddell Hart has produced a comprehensive, thought-provoking appraisal of the Soviet Army which will serve as a sound basis for the average individual to understand the true significance of the vital role it has played in the evolution of Soviet expansionism.

When 31 noted Soviet military specialists express their detailed and occasionally controversial views on various facets of the Soviet military machine, one must reserve judgment on some of the final conclusions that they offer for consideration. By utilizing either their personal experiences with the Soviet military machine or extensive individual research on the subject, they have attempted to develop a collective answer to one basic question: How good is the Soviet Army today?

The early years of the Red Army are discussed briefly by individuals who made an extensive study of this period. Of particular interest is the purge era of 1936-37 and its impact on Soviet military doctrine. As Mr. Schapiro points out, the elimination of Marshal Tukhachevsky along with about half the total officer corps—35,000 victims in all—led to the rise of Marshal Shaposhnikov and his proteges—Antonov, Vasilevski, Konev, and Zhukov—the famed and successful Soviet leaders of World War II who developed the foundations of modern Soviet military doctrine. The German generals are quite explicit in expressing their respect for Soviet military power and sound a warning to the west that should not go unheeded. Colonel General Guderian, the brilliant Panzer leader, summed up their views when he stated "nothing would be worse than to underrate the strength of a great nation as full of life as the Russian."

In the postwar era the Soviets have exerted great efforts and achieved considerable success in replacing the "army of quantity" with an "army of quality" that is geared to the requirements of the modern battlefield. Part II of *The Red Army* focuses our attention on the drastic changes and developments which have taken place since 1945. The increased ratio of tank and mechanized units versus infantry divisions, the emphasis on improved techniques and technical skill, utilization of the latest scientific developments, the rigorous retraining of the officer corps—these are only a few of the signifi-

cant changes that indicate the Soviet determination to increase their battlefield mobility and combat effectiveness.

It appears that Mr. Liddell Hart has adopted a detached view in appraising the conclusions of his contributors. He seems to be skeptical of what he calls the "mental elasticity" of Soviet military leadership, and the extent that Soviet Army has improved in "tactical quality" since World War II. He suggests that war is the only crucible which will determine the quality of leadership and true capabilities of the Soviet Army. Nevertheless, *The Red Army* contains a vast amount of factual information prepared by competent experts on many aspects of the Soviet Army; their comments and opinions deserve serious consideration by every Army officer and will serve as a valuable guide in accurately assessing the strength and weaknesses of the Soviet Army.

STORMY LIFE. By Ernst Heinkel. Edited by Jurgen Thorwald. 256 Pages. E. P. Dutton & Co., Inc., New York. $5.00.

BY MAJ MILTON R. PIERCE, *USAF*

This is the autobiography of one of the world's foremost aviation pioneers, designers, and industrialists. Written in the form of personal memoirs, it covers the dynamic career of Germany's Ernst Heinkel from 1908 through World War II.

He was completely devoted to the design and construction of airplanes, and achieved prominence even before World War I, when, at the age of 25, he designed and built a seaplane which won an international speed race.

His prominence in his field brought him into familiar contact with most of the historically significant figures in recent German history. His observations of many of these people add considerable interest to an already absorbing story.

This is a thoroughly enjoyable and worthwhile book, and can be recommended for the casual reader as well as the student of aviation history.

PANZER-MARSCH! By Heinz Guderian. Adapted by Brigadier General Oskar Kunzel, German Army, Retired. 244 Pages. Schild-Verlag GMBH, Munich, Germany.

BY LT COL W. C. MAGATHAN, JR., *Arty*

General Guderian had hoped to prepare a handbook on the employment of armor based on his own ideas and practical experiences in World War II. This book was to serve as a guide for the new German armored forces and to preserve the dearly bought lessons of the war. His death interrupted this work which was later brought to fruition from his notes by General Kunzel.

The book published in the German language deals with the techniques of fighting armor units up to battalion size including the discussion of general principles governing armor employment, fighting under special conditions including winter, mud, desert, night, and fog, and cooperation with other arms. A final chapter cites combat examples under typical circumstances.

It is a valuable book for the tank unit commander and those who want to know how tanks are fought.

SOUND BARRIER. By Neville Duke and Edward Lanchbery. 129 Pages. The Philosophical Library, Inc., New York. $4.75.

BY LT COL HERBERT O. DERR, *USAF*

This is an interesting and well-written book by two Englishmen which tells the story of high-speed flight for the general, nontechnical reader. It gives him an understanding of the flight obstacles already faced and overcome in achieving supersonic flight, and of the problems ahead in overcoming the "heat barrier."

The book contains more than an average number of illustrations and pictures of both British and American aircraft developed in the past several years to overcome the flight problems of passing through the "sound barrier."

AMERICAN DEFENSE AND NATIONAL SECURITY. By Timothy W. Stanley. 202 Pages. Public Affairs Press, Washington, D. C. $3.25.

BY COL HEWITT D. ADAMS, *USMC*

In his introduction the author says, "In these pages I endeavor to objectively trace the evolutionary pattern and describe the present structure, processes and people—and the interrelationships between them—as factually and concisely as possible." To a considerable extent he has been successful in his endeavor. The chief criticism which the reviewer would make is that it is too factual and concise; too concerned with the form rather than the substance of the decision-making process in defense matters.

In tracing the development of the organization for national defense, the author again and again mentions the impact of the personalities of the leaders on the evolutionary process. But there is no treatment of what the personalities, or personal traits, were. This seems to be a weakness of the objective process in general, for no organizational structure will do other than reflect the thinking of the people who run it.

The factual presentation does give a clear picture of the organization for defense and the process of its development. The author uses charts to show the various proposals and structures which add to the ease of understanding. Also included are illustrative examples of the decision-making process that are rather frightening. Still, the system does work and has been capable of rapid decisions under pressure.

In his closing chapter, the author examines the problems of structure which remain today, and about which there is considerable controversy. He proposes no solutions, but he does reach the conclusion that seems only logical after a study of the book: "To be sure there are differences of opinion where the best 'security' can be bought. But if the day comes when only one voice is heard on the subject, the goal may be further away than ever."

The book contains excellent reference on the national structure for defense.

WILLIAM TECUMSEH SHERMAN AND THE SETTLEMENT OF THE WEST. By Robert G. Athearn. 371 Pages. University of Oklahoma Press, Norman, Okla. $5.00.

BY LT COL JAMES R. FRANCIS, *MSC*

An absorbing and informative account is made of a little touched upon period of a great soldier's career. The 18 years' service rendered by General Sherman after the Civil War are considered by the author to be as important, if not more so, as his Civil War service. He makes his point well. A well-rounded portrayal is drawn from many unpublished sources, newspaper accounts, and official documents.

Sherman is treated sympathetically and with insight as one man when confronted by the public and politics and another when seated around a campfire spinning yarns with old friends. Any modern Public Information officer could use the volume as a selling point for good public relations, for few men in history of such vision and innate sense of fair play have been as misunderstood as the author portrays Sherman to have been. Sherman's role in the development of the West is the central theme which is skillfully woven throughout the book.

The book is a valuable addition of knowledge relative to a period about which much fiction has been written but little fact and regarding a climactic portion of General Sherman's career overlooked for the most part by historians. The book is recommended reading for those generally interested in the history of the United States or the West and for those specifically interested in Sherman.

DICTIONARY OF RUSSIAN LITERATURE. By William E. Harkins. 439 Pages. The Philosophical Library, Inc., New York. $10.00.

BY MAJ ROBERT H. ALLAN, JR., *CE*

Mr. Harkins, a member of the faculty of Columbia University, has provided the student of Russia and her people with a key to the literary and philosophical arts of that great nation. By reference to the literature and philosophy of both ancient and modern Russia, the user of this book cannot only gain an intimate and detailed knowledge of the people, but can find many connecting paths leading to other interesting fields.

This is a reference book and a comprehensive dictionary of Russian literature and its development. It gives a reference to every Russian writer of any repute. There are more detailed articles on the outstanding figures in Russian literature such as Tolstoy and Pushkin, and references to prominent political leaders and their influence on the atmosphere for literary development whether or not they were contributors to that development.

There are many articles on related areas such as philosophy and philosophers, the literary periods of Russian history, schools, and many technical literary terms.

THE AMERICAN SYSTEM OF GOVERNMENT. Fourth Edition. By John H. Ferguson and Dean E. McHenry. 741 Pages. McGraw-Hill Book Co., Inc., New York. $6.75.

BY LT COL IRVING HEYMONT, *Inf*

This book is an up-to-date revision of a college text first printed in 1947. Written in a simple and lucid style, it contains all the facts needed for a well-rounded background in American Government. The illustrations and charts are pertinent and simplify the text.

The field covered extends from the basic historical materials essential for an understanding of the roots of our National Government to an examination of our present national, state, and local political institutions. The relation of the Military Establishment to National and State governments is covered in detail. Unlike most texts, this one does not confine itself to a mere recital of facts and description of systems but includes an evaluation in the light of other current political systems.

Preoccupied by international affairs and divorced from participation in local affairs by statute and frequent changes of station, the military reader will find this text a valuable addition to his library.

THE AMERICAN STORY. By Garet Garrett. 401 Pages. Henry Regnery Co., Chicago, Ill. $5.00.

BY LT COL SHIRLEY M. CASTLE, *QMC*

This is an excellently condensed story of the United States from her beginning down to the cold war following Korea. Mr. Garrett reviews and analyzes the history of this Nation in many areas—economic, military, domestic policy, foreign policy, and sociological—with a newspaperman's cynicism, liberally enriched with his own philosophy. He is frankly skeptical of experiments in government, proud of our national accomplishments which have been telescoped into such a brief period, but, on the international scene, he leaves to the reader the answer to the query, "Where do we go from here?"

BUFFALO BILL: King of the Old West. By Elizabeth Jane Leonard and Julia Cody Goodman. 320 Pages. Library Publishers, Inc., New York. $4.95.

MILITARY DICTIONARY. German-English, English-German. By Kurt Hilmar Eitzen. 549 Pages. Frederick A. Praeger, Inc., New York. $6.00.

EUROPEAN FIREARMS. By J. F. Hayward. 53 Pages. The Philosophical Library, Inc., New York. $7.50.

CIVIL WAR ON WESTERN WATERS. The Story of the Union and Confederate River Navies. By Fletcher Pratt. 255 Pages. Henry Holt & Co., Inc., New York. $3.50.

CANADA'S ARMY IN KOREA. A Short Official Account. Prepared by the Historical Section, General Staff, Army Headquarters, Ottawa, Canada. 108 Pages. The Queen's Printer, Ottawa, Canada. $0.75.

BY MAJ GUY ROBITAILLE, *Canadian Army*

In Korea for the first time in history an international force under the flag of the United Nations met a challenge and defeated it. Canada's participation in the United Nations operations, as a part of the First Commonwealth Division, is interestingly summarized in this official account which deals principally with the activities of the 25th Canadian Infantry Brigade Group and to a lesser extent with the part played by the Royal Canadian Navy and the Royal Canadian Air Force.

The arrival of the Princess Patricia's Canadian Light Infantry at Pusan in November 1950 marks the beginning of the new chapter in Canadian military history. By February 1951 the "Patricias" were assigned to the 27th British Commonwealth Brigade, and soon found itself in one of the most important battles of the conflict. The story of the battalion's stout and successful stand in a key position in April is well told.

The pamphlet is well illustrated with sketch maps and photographs. Although it is probably of primary interest to military personnel, it is written in language which can be readily understood by those possessing a minimum knowledge of military matters.

THE EDUCATION OF FREE MEN. Horace Mann Lecture, 1955. By Ernest O. Melby. 75 Pages. University of Pittsburgh Press, Pittsburgh, Pa. $1.00.

THE PRICE OF PEACE. A Plan for Disarmament. By Charles G. Bolté. 108 Pages. The Beacon Press, Boston, Mass. $2.50.

BY CAPT ROY W. FARLEY, *Armor*

The underlying theme of this essay is the need of the world to avert a third world war if it is to escape the destruction of civilization as we now know it. The author analyses the failures of previous disarmament plans, puts forth his principles for disarmament, and outlines a detailed plan embodying these principles.

The plan advanced by Mr. Bolté is open to attack on many points. In an attempt to advance a disarmament plan that is total, universal, and enforceable, he argues five general propositions.

It is perhaps only on one point that Mr. Bolté avoids coming to direct grips with the old chicken-and-egg dilemma in this field. Which should come first—disarmament to bring about a more favorable period of international relations, or the establishment first of favorable governmental relationships to furnish the ground in which effective disarmament can grow?

Whether his plan, which the author himself admits approaches the Utopian, squarely faces the practical problems involved, is a question for each reader to decide.

This book is highly recommended for both military and civilian readers as a frank and authoritative approach, and one possible solution to what is undoubtedly the greatest crisis to face mankind.

IMPROVING THE WORK SKILLS OF THE NATION. By National Manpower Council. 203 Pages. Columbia University Press, New York. $3.50.

A HANDBOOK OF HOSPITAL PSYCHIATRY. By Louis Linn, M. D. 560 Pages. International Universities Press, New York. $10.00.

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